This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

LANE MEDICAL LIBRARY STANFORD
2 45 0172 9107

AVE. COR. GEARY,
ANCISCO.

Dr. James W. Ward.

ORIFICIAL SURGERY

ORIFICIAL SURGERY

AND ITS

APPLICATION TO THE TREATMENT

OF

CHRONIC DISEASES

BY

E. H. PRATT, A. M., M. D., LL. D.,

PROFESSOR OF ORIFICIAL SURGERY IN THE CHICAGO HOMŒOPATHIC MEDICAL COLLEGE;
SURGEON TO COOK COUNTY HOSPITAL; MEMBER OF THE ILLINOIS HOMŒOPATHIC
MEDICAL ASSOCIATION, AMERICAN INSTITUTE OF HOMŒOPATHY, AND OF
THE ACADEMY OF MEDICINE; HONORARY MEMBER OF THE
MISSOURI, KENTUCKY AND OHIO STATE SOCIETIES.

CHICAGO:
HALSEY BROTHERS.
1890.

Copyright, E. H. Pratt, 1891.

P11
1890

TO

MY LOVING FATHER,

WHOSE STERLING CHARACTER, STUDIOUS HABITS AND PATIENT HANDLING OF
AN IMPETUOUS NATURE ARE IN GREAT PART RESPONSIBLE FOR ALL
THAT I MAY BE ABLE TO ACCOMPLISH, THE WORK, OF WHICH
THIS VOLUME IS BUT A POOR EXPRESSION, IS, WITH
DEEPEST AFFECTION, DEDICATED.

PREFACE.

THIS is not the "larger treatise" referred to in a former work on this subject. The demands of public and private work have been too great as yet to permit me to present the thorough and exhaustive text-book upon orificial surgery which it is my intention, as soon as possible, to prepare. Asking, therefore, still further indulgence on the part of the profession, I have tried to make this work sufficiently comprehensive in its scope to enable those who cannot attend the classes for instruction in this specialty, by careful study of its contents, to enter upon the practice of orificial surgery with a considerable degree of success.

It is with deep feelings of satisfaction that I can say to my readers that the four years' professional experience which I have had since the publication of the previous work, has served only to strengthen my faith in the principles of the "orificial philosophy" and deepened my conviction that they must, in time, become universally recognized and adopted in the treatment of chronic diseases. Methods of applying these principles have improved greatly, and will undoubtedly continue to improve, but the principles themselves, upon which the work is based, have remained unchanged, and, so far as I am aware, have not been successfully assailed.

E. H. PRATT.

CHICAGO, January 1, 1891.

ORIFICIAL SURGERY.

CHAPTER I.

THE PHILOSOPHY OF ORIFICIAL SURGERY.

THERE is but one direct means by which man's physical being is developed, by which it is maintained in normal condition, and, when broken down, by which it is restored to a condition of health. Hence there is one chief thing to which the various measures employed for the relief of bodily ills should be directed. It matters not what the measures may be; whether they consist of the administration of drugs, the application of massage, electricity, bathing, mental influences, or any other mode of treatment, all are directed to this one thing, viz: *the circulation of the blood.*

If the blood current is strong and free, health is assured; if, on the other hand, the general circulation is sluggish, or local congestions occur, morbid processes are of necessity initiated.

There is not a pathological lesion that does not have its beginning in blood stasis. To re-establish and to maintain a normal circulation, local and general, is, therefore, the great problem that demands solution in the successful treatment of chronic diseases, both medical and surgical.

It is well known that it is upon nerve-force alone that the circulation depends for its activity. Hence a proper supply of nerve-force means a good circulation, with all its attendant blessings. A waste of nerve-force, or a low tone of the nervous system, means an enfeebled circulation, with its various forms of unfortunate sequences.

The special nerve-force which presides over the circulation of the blood is furnished by the great vaso-motor system.

This system is formed by the intermingling of fibers from both the cerebro-spinal and the sympathetic systems of nerves. It twines about the great arterial tree, from its trunk at the heart to its finest ramifications in the capillaries. Thus, the distribution of the blood is subjected to a double influence. By means of this double force, two things may cause tears to moisten the eye: physical irritation, as of a foreign body, or an emotion. Two things can empty a stomach: either an emetic or a disgusting suggestion. Two things can excite the sexual system to activity: some form of physical irritation, or an emotion. Two things can start the perspiration over the entire body: either severe physical or severe mental exertion. And this is true throughout the entire list of bodily activities.

By this double system of nerves our bodies are made the play-ground of both physical and mental forces, to each of which they are alike responsive. But the action of the cerebro-spinal system is spasmodic and not to be relied upon for the processes of nutrition. It goes to sleep every night; it is paralyzed under the action of an anæsthetic; and in every way it is unreliable as a steady provider of nerve-force.

But the sympathetic nerve, fortunately for our maintenance, is tireless in its activity; it sleeps but once, and that sleep is final. By night and by day, in rest and in toil, under all conditions and at all times, without the aid of the cerebro-spinal system, the sympathetic force is still maintaining the functions of animal life. After food has once entered the œsophagus it can be swallowed, digested, and appropriated under the control of the sympathetic nerve, entirely irrespective of cerebro-spinal influence.

The two nervous systems, aside from contributing to the formation of the vaso-motor system of nerves which presides over the circulation of the blood, have, in addition, each their separate duties to perform in the various parts of the animal economy. The cerebro-spinal supplies the body with the various sensations with which consciousness makes us familiar, and also distributes motor filaments to all the voluntary muscles of the body. These are the so-called striated muscles that form the great muscular masses which pad the extremities and outer surfaces of the head, neck and trunk, and are exclusively for the purpose of adapting the human body to its relations with the outside world. They are directly under the control of the human will, and act only when the individual directs them to do so.

The sympathetic nervous system is much simpler in its construction. Like the cerebro-spinal, it possesses afferent nerves of sensation which are distributed to the various mucous membranes of the body, and efferent nerves of motion which supply the entire involuntary muscular system. The various processes of bodily activities are carried on uniformly by tubular structures. These structures are invariably supplied with a muscular coat whose fibers are arranged both longitudinally and circularly.

The afferent, or sensory filaments of the sympathetic nervous system, supply the mucous membranes of the body with the one common sensation peculiar to the sympathetic system, but unknown to consciousness, unless the sympathetic be responsible for the sensations of hunger, thirst and general bodily desires.

The efferent nerves of the sympathetic system are distributed to the involuntary muscular fibers throughout the body. These muscular fibers are non-striated in their microscopical appearance, and are arranged in layers which form one of the coats of every tube in the body. The blood-vessels, the digestive and respiratory tracts, and the ducts of glandular structures are all supplied with muscular coats of these involuntary fibers. The arrangement of these fibers is quite uniform, being disposed both longitudinally and circularly, in every instance securing, by their alternate action of constriction and shortening, the vermicular motion by which all solids and fluids are propelled along their various channels.

The sympathetic nervous system also supplies the entire sexual apparatus of either sex. The relations thus established by the sympathetic nerve between the various parts which constitute the human body are very close and delicate, and a disordered function in one part can disarrange and disturb, to a greater or less extent, the harmonious action of any or all the other parts.

Let me now call attention to the lower openings of the body. Each one of these openings is guarded by two distinct sphincter muscles, an upper and a lower. The upper one, in each instance, is composed of involuntary muscular fibers, and is, consequently, supplied by the sympathetic nervous system.

The lower sphincter is made up of voluntary muscular fibers, and it is under the control of the cerebro-spinal nervous system. This is true of the rectum, and it is also true of the male and female urethræ.

Since the sexual organs, in both sexes, take their nerve supply from the sympathetic nervous system, whatever wastes sexual power in either sex causes a waste of sympathetic nervous power, and, therefore, lowers the nervous tone of the entire sympathetic system. Continued, unremitting contraction of any muscle or set of muscles, voluntary or involuntary, if excessive, is exhausting in its effects on either nervous system. Many men who could be on their feet without undue fatigue from morning to night, if permitted frequently to change the position of their muscles, as in walking, are wholly unable to stand motionless for an hour, oftentimes suffering exhaustion to the degree of complete loss of consciousness when called upon to do so. Tonic spasms of involuntary muscular fibers are equally disastrous in their consequences, although the signs of fatigue on their part are indicated by functional disorders, and hence they are very apt to be misinterpreted.

With this brief résumé of anatomical and physiological facts, we are prepared for a consideration of some of the principles upon which the orificial philosophy is based. First of all should be mentioned that the irritation of an organ begins at its mouth. It needs no elaborate discussion of this fact to establish its truthfulness and importance, as anyone, who is unable at once to assent to the proposition theoretically, can very soon satisfy himself of its correctness by a little observation. The mouths of organs, then, are the parts of organs most liable to be affected. They are guarded by sphincter muscles, whose nature it is to contract in response to any form of irritation, be it a temporary one, as in the discharge of its ordinary function—in which case undue contraction will be but temporary—or be it a continued irritation, in which case the contraction will be continual and exhausting.

The proposition which I now desire to present will doubtless seem somewhat startling to those who read it for the first time, because nothing but an extended experience can ever convince one that it has such a wide application as it really possesses. Let me briefly quote from the previous book upon this subject, published four years ago :

"It may be that my own experience, added to that of hundreds of co-workers in this field, has not been extensive enough to justify so radical a position, although a practice confined exclusively to the treatment of chronic diseases for nearly two years has multiplied that experience very rapidly indeed, yet it is now sufficiently well established to justify my offering it for your approval or disapproval, as the issue may be : *In all pathological conditions, surgical or medical, which linger persistently in spite of all efforts at removal, from the delicate derangements of brain-substance that induce insanity, and the various forms of neurasthenia, to the great variety of morbid changes repeatedly found in the coarser structures of the body, there will invariably be found more or less irritation of the rectum, or the orifices of the sexual system, or of both.* In other words, there is one predisposing cause for all forms of chronic diseases, and that is a nerve-waste occasioned by orificial irritation at the lower openings of the body. These irritations induce a rigidity of the sphincters guarding the parts, which either continues, sympathetically affecting the rest of the involuntary muscular system, and steadily draining the nervous power that supplies it, until the whole struggle, terminates in a rigor mortis, or, tiring out in the hopeless grip, it relaxes into the inertia of paralysis."

Since this was written three years have passed, during which time my practice has been devoted exclusively to the treatment upon orificial principles of all forms of chronic diseases. Although at the former period it was safe to present the proposition with so modest a preface, it is but just to the orificial philosophy to state that at the present time I have yet to see an exception to the proposition above expressed.

Aside from this view of the relation of orificial irritation to chronic suffering in all its forms, there is another matter worthy of mention in this connection. It is the reflex effect of irritations in general. Reflex irritation is of more common occurrence than is generally recognized. Instances of it occur with sufficient frequency to have attracted to some extent the attention of almost every physician. There is, moreover, one characteristic which may always be observed: that wherever there is reflex irritation there is also reflex congestion. This is true of structures supplied by either nervous system.

Let me point out some common examples. Where an external injury produces a reflex of irritation from the peripheral to the central extremity of the nerves involved, as in lockjaw, all appearance of congestion and irritation, or at least a great portion of it, disappears from the wound, but can be found post-mortem at the nerve-centers. When, in an attack of mumps, the irritation leaves the salivary glands and attacks the ovaries or testes, the congestion is also transferred. When, also, a patient suffering from uterine irritation and congestion ceases to be conscious of local irritation, but suffers a cerebral, a spinal, or other distress remote from the point of causation, the congestion follows the line of irritation. For this reason, as a rule, severe local lesions at the lower openings of the body, sufficiently irritable to make the patient painfully conscious of their presence, are not liable to be accompanied by reflex troubles, and as soon as they are corrected the patient is perfectly well.

On the other hand, when a previous condition of irritation and congestion of these parts has been transferred to some other part of the organism by metastasis, the patient is left wholly unconscious of orificial irritation, and no amount of questioning can elicit symptoms of local mischief. In this way, the physician is many times thrown off his guard, and omits the most essential part of his physical examination of the case. If, however, a habit of thoroughness should induce him to make local examinations, the patient will be so free from congestions and irritation at the lower openings, they will appear to be so insignificant, that unless the physician is thoroughly familiar with the subject of reflexes, he would think it scarcely worth his while to give attention to the apparently slight lesions presenting themselves. It is only when he realizes the exhausting effect of undue contraction of muscular fibers, that he will begin to appreciate the necessity of relaxing all parts that are unduly contracted, and removing from the orifices all sources of irritation which first induced, and subsequently protracted, the abnormal tension.

The orificial surgeon, then, cannot safely estimate the amount of benefit that will result from his work by the amount of local mischief present.

This practice of correcting reflex irritations and congestions, and instituting general nutritive changes throughout the body by the treatment of its lower orifices, is one that invites a great deal of study and investigation. In fact, the profession can no longer consistently deny the subject the attention that it deserves.

It will doubtless occur to many that if the orificial philosophy be true, I am unnecessarily narrowing its limits in considering merely the lower orifices of the body, and that orificial surgery, properly so-called, should be the surgery of all the orifices. To those who view the subject superficially, the whole philosophy will seem simply like a part of the theory of peripheral irritation as a primary cause of physical troubles. But as this notion will be speedily dispelled by a more careful perusal of the contents of this book, the error is simply mentioned as one liable to be made by a careless reader.

There is some slight excuse, however, for thinking that the philosophy should apply to the upper orifices as well as to the lower. It is true, as a general proposition, that irritation of any organ starts at its mouth, and many instances may be seen in connection with the upper openings of the body, as well as the lower. Many cases of asthma have been cured by the removal of a nasal polyp, and catarrhal conditions starting in the Schneiderian membrane have a very common practice of passing along its various ramifications, inducing troublesome affections of the nasal ducts, frontal sinuses, antrums of Highmore, Eustachian tubes and middle ear, and also of the soft palate and pharynx. Irritation of the fauces, the archway of the throat, can lead to dyspepsia, laryngitis, pharyngitis, and posterior nasal catarrh. Oculists and aurists could fill volumes with the history of remarkable cures of general, as well as of head troubles, made by suitable adjustment of glasses, or by the removal of some form of peripheral nerve-irritation. But they, like other practitioners of medicine, will sometimes come across pathological conditions which fail to respond to the treatment adopted ; and yet these cases should find relief from some source. Such cases will occur in the systems of those whose reactive power is poor, whose general nervous force has been so far exhausted as to render them unable to respond to the action of medicines and local measures. Such cases, whether they be suffering from paralysis of the optic, or the auditory nerve, or from neuralgia, chronic catarrh, or from whatever other trouble, so that it be a persistent one, calling for increased reactive power and better capillary circulation, such cases, I say, are candidates for orificial surgery in the sense in which I am employing it in this treatise. By means of orificial surgery, properly applied, the entire body can be supplied with an improved capillary circulation, a better nutrition, and an increased reactive power which will furnish a better groundwork for the subsequent employment of local measures. In this way, large numbers of cases of blindness, deafness, neuralgia and catarrh will respond to the skillful treatment of eye and ear specialists, after orificial work has been accomplished, that previously failed to respond to any measures instituted for their relief.

Those organs having outlets at the upper part of the body, while they have important functions in the animal economy, are not so essential to the maintenance of the general health of the system as are those which open below.

Every organ of the body is continually undergoing more or less waste from the disintegration and molecular death of its cellular structure. The main avenues of exit for this waste terminate below in two channels, whose passageways are perpetually traveled by the waste products of the body. The gaseous waste of the system can escape through the integument and by the breath, but the solid elements of waste congregate to form the steady streams of urine and feces, which require for the continuance of health a daily exit, so that the lower openings of the body, with their guarding sphincters, are not merely the orifices of the rectum, the urethra, etc., but they are the universal gateways for the entire body by which the dead cells, that have been worn out in the service of an eye, an ear, a nose, a brain, a spinal cord, a skin, a mucous membrane, a liver, a heart, a lung, and, in fact, any and every organ of the whole body, can pass out from the system. And when you treat these universal gateways of the human system, you not only affect the organs of which they are the mouth, but also affect most profoundly the entire aggregation of organs which constitute the human body.

The upper openings of the body can be closed for repairs when necessary. Eyes can be bandaged, ears can be stopped, the nose can be protected from contact with the air, the mouth may remain closed, and all this for an indefinite period. But not so of the sphincter-guarded lower orifices. Feces and urine must escape, regardless of the condition of the orifices through which they pass. The débris of the body must be removed at regular intervals, or the system speedily becomes poisoned by the decomposing masses. For this reason the lower openings of the body can never rest.

I am well aware that irritation at any point supplied by either nervous system, can be so severe as to affect the general nutrition and repair of the entire organism. In the sphere of the cerebro-spinal system, a felon, a dislocated joint, or an ulcerated tooth ; in the sphere of the sympathetic system, any indigestible substance, a foreign body in the air-passages, or in the bladder, or uterus, can, for the time, derange the circulation, and consequently the nutrition of the entire body. And I know also that as soon as the cause is removed, the body will show the result of the relief experienced by renewing its former condition of activity. But I am also aware that irritation at the lower orifices exercises a strong influence over the entire system, which cannot be said with equal force of irritation in any other portion of the body.

If a patient be completely anæsthetized, no amount of surgical procedure, not necessarily fatal in its nature, seems to interfere in the least with the functions of respiration and circulation. A hand or foot may be amputated, a pleural or peritoneal cavity may be opened, in fact, any of the common operations in major surgery may be performed without materially affecting the depth of inspiration or the rapidity of the heart's action, except when the operation is so severe as to threaten the extinction of life. In such case, respiration, of course, will be correspondingly slow, and the heart's action more or less enfeebled, this being merely the effect of severe shock in major operations. But in the weak and in the strong, whether the lower openings of the body be seriously affected or present but slight evidences of disorder, the dilatation of circular fibers supplied by the sympathetic nerve will always produce more or less effect upon the respiration and the rapidity of the heart's action. Many times this effect is so marked as to produce, for the time, a complete suspension of animation, both respiration and the heart's action being stopped.

That this effect is produced through the action of the sympathetic system rather than through the cerebro-spinal, is very easily demonstrated ; that is, providing the subject experimented upon be a sufficiently sensitive one to make careful observation possible. After the patient is completely anæsthetized, let the thumbs be inserted into the rectum only far enough to impinge against the external sphincter. If dilatation be now practiced even to an extreme degree, no more effect upon the respiration will be produced than will be occasioned by pinching or otherwise injuring the integument or any other portion of the body supplied by the cerebro-spinal system. If, however, the thumbs or fingers, or a speculum, be inserted far enough to impinge upon the internal sphincter, and dilatation of these muscles be practiced, the effect upon the respiration is very remarkable. The patient seems to be at once seized with an inability to inspire. The heart's action becomes slow and feeble, and in sensitive subjects the condition passes on to complete syncope. As the external sphincter is supplied by the cerebro-spinal nerve, and the internal sphincter, an inch or so higher, is supplied by the sympathetic nerve, and as the phenomenon just mentioned can be demonstrated on one-half or two-thirds of all the cases placed under an anæsthetic, it seems to me reasonable to suppose that the profound effect upon the respiratory and circulatory systems is produced by a shock to the sympathetic rather than to the cerebro-spinal system.

Another fact is also revealed : immediately after such an experiment the capillaries of the system become instantaneously and universally flushed. If hands and feet have been cold for twenty years they will become hot in less than two minutes. If the face has been pallid and sallow, it will begin at once to glow with a new infusion of blood into the capillaries of the skin. That which takes place in the capillary circulation where it is visible, we may safely infer is also occurring in the deeper parts of the system. In other words, it seems to me reasonable to conclude that the entire capillary circulation is thoroughly flushed. As a result of this equalization of the capillary circulation, there follows a subsidence of all local congestions. If there is a boil, or carbuncle, or other inflamed spot on the surface of the body, where it is subject to inspection, the relief of the congestion can be very easily observed with the naked eye. Thus, dilatation of the sphincters supplied by the sympathetic nerve has the remarkable effect of instantly equalizing the capillary circulation of the entire body, flushing parts that are anæmic, relieving parts that are congested, and arousing the entire system to renewed activity. Dilatation of a urethra, of a uterus, or of a vagina will usually produce a like magical effect.

That the effect, however, is not due entirely to the dilatation of the sphincters, but rather to the bruising and consequent shocking of terminal nerve filaments of the sympathetic nerve, is shown by the fact that a similar effect can in many cases be produced by the severe pinching of a hymen, the hood of a clitoris, the foreskin, or the mucous membrane covering the last inch of the bowel.

It is a common experience in removing piles by the clamp that the effect upon the respiration of pinching these tissues is so profound that it is necessary for the relief of the patient not only to stop, for the time, the administration of the anæsthetic, but also to remove the clamp for a short period until the patient has rallied from the first shock, before the clamp can be safely reapplied and the operation proceeded with.

In this connection may be mentioned another effect which very nicely illustrates the proposition that the irritation of an organ starts at its mouth. While I have seen the effect upon the respiration and circulation as described produced by dilating any one of the lower orifices of the body (although it is usually very much more marked in the rectum than at the other openings), and although, while I have seen it repeatedly produced by pinching of the mucous membrane covering the orifices, I have never yet seen it produced by a seizure of the mucous membrane or muscular tissues above the orifices, although the parts are supplied by the same nervous system. In a case, for instance, where the seizure of a pile tumor will, for the time, suspend all animation of the patient, I have never been able to produce a similar effect by pinching the mucous membrane to an equal extent, two or three inches up the rectum. The application of pinching forceps to the labia minora, the hood of the clitoris, or to the hymen may greatly disturb the respiration and circulation, as may also the dilatation of the uterus, but the pinching of the walls of the vagina of this same case would be absolutely without effect.

When, however, as the result of localized irritation, the circular fibers of the vagina, or of a rectum at some distance above its opening, have produced more or less of an organic stricture, and have thus practically formed an artificial orifice to the canal, although I have never seen the pinching of the mucous membrane covering this part affect the respiration and circulation in the peculiar manner described, I have seen the same effect result from the dilatation which was employed to break the strictured condition. Never, however, have I seen such stricture take place where there was not also present a sufficient amount of irritation at the true orifice of the canal involved to make me confident that the strictured condition was more or less reflex in its origin.

It is a surprise to me that this peculiar effect upon the entire body of the forcible dilatation of the lower orifices of the body, more especially the rectum, has not attracted more widespread attention. I am still more surprised that it is so completely overlooked by men who should be familiar with it. It is not three years since a messenger rushed into my office summoning me to the bedside of a dying patient. Being too much occupied to give the call my immediate attention, I dispatched my assistant to care for the case until I could get there. The patient was a stout, fleshy person, who was suffering from an extreme degree of asphyxia. She seemed wholly unable to breathe, was extremely cyanotic in appearance, pulseless, and apparently beyond the possibility of human relief. Upon inquiry my assistant found that, three or four days previously, a rectal surgeon had treated several large pile tumors by the injection method. She had suffered no inconvenience from the treatment until about an hour before, when she undertook to effect an evacuation of the bowels. This she had been unable to accomplish, but the straining consequent upon her effort had prolapsed the tumors and she had been unable to replace them. She was immediately seized with an inability to inspire, was carried to her bed, and had my assistant been fifteen minutes later in his arrival, would undoubtedly have choked to death from spasm of the glottis, reflected from the gripping of the pile tumors by the internal sphincter. My assistant lost no time in immediately replacing the pile tumors, and was gratified to observe that his action afforded instant relief to the gasping victim.

A few days later, while reading one of the standard works on rectal surgery, I felt distressed as I read the advice of the author. He says: "When about to operate upon pile tumors by the radical method, after thoroughly cleansing the colon of all contents of fecal matter, induce the patient to strain the piles well down, and after they are thoroughly protruded, place him under an anæsthetic." It seemed to me, especially in view of such an experience as I have just related, that it might, in some sensitive organisms, be an exceedingly dangerous preparatory procedure.

About two years ago the lack of knowledge of the influence of rectal work upon the respiration was the cause of death in the following case, which is now so well known that many who read these pages will at once recognize the description. An eminent surgeon, while holding a college clinic, presented to the class a case of fistula. The man was placed under the influence of ether and the case was successfully operated upon and dismissed. A year subsequently the same man presented himself to the same clinic for the same surgeon to operate upon him for hemorrhoids. The same assistants gave the man the same anæsthetic — ether — which he took as kindly as before. The surgeon proceeded to remove the piles by the orthodox process of ligation, talking as he worked; but as soon as he tightened the ligature upon the first pile tumor the assistant who was administering the anæsthetic called his attention to the general condition of the patient. He had stopped breathing and was rapidly becoming cyanotic. The surgeon arose from his chair, observed that the man was not only breathless, but becoming rapidly pulseless, and immediately began active measures for his resuscitation. Artificial respiration, practiced both with the patient horizontal and with head and shoulders dependent, the use of electricity, and all other measures which were employed were wholly unavailing, and the man's spirit went out, and neither the operating surgeon nor his attendants nor any gentleman present seemed to think far enough or to know enough to cut the string that all this time was strangling the pile tumor and constricting the terminal filaments of the sympathetic nerve. The case was thoroughly described in all its painful details in a prominent medical journal, and yet I have seen no comment either in that journal or in any other upon the ignorance manifested in this case concerning the disturbance to the respiration which follows injury to the rectal nerves. The death was, of course, attributed to the action of ether, and yet the patient had taken it safely the year before and was acting kindly under its influence at the time of the last operation until the very moment at which the ligature was applied about the pile tumor. This point is very carefully made by the operator himself in his description of the case, and yet it never occurred to him that the ligating of the tumor was the cause of the man's difficulty of respiration and that the cutting of the string which bound it, followed by a slight dilatation of the sphincter, would immediately have restored the man to animation.

It may appear to some who are not familiar with this line of practice that the general systemic effect, this flushing of the capillaries, this instantaneous equalization of the circulation, is but a temporary effect, affording the patient no permanent relief. While this may be true of a great many cases where mere dilatation is employed, and where no effort is made to remove the irritation which first caused undue contraction of the sphincter muscles, there are hundreds of physicians now experienced in the practice of orificial surgery who will bear me out in saying that such is not the case when the operation is made to cover all the orificial work which the case demands.

In operating upon the eye, it is common for oculists to employ a speculum which places the lids upon extreme tension. In operating upon the nose, the nostrils are forcibly dilated. In operating upon the buccal cavity, the mouth is repeatedly stretched to its possibilities. In overcoming obstructions in the nasal ducts, the canaliculi and punctata are treated to extreme degrees of dilatation. In examining the condition of the ear-drum, the auditory canal is severely pressed against by the auditory speculum.

While I am not an oculist or aurist, yet I have had some experience with nasal and aural operations; but I have never seen as a result of any of the dilatations named, the slightest effect produced upon the organs of respiration or circulation. This effect, so far as I am aware, is confined to dilatations and impingements upon the nerves of the lower orifices of the body. This observation, which I have confirmed again and again, is my justification for limiting the application of the orificial philosophy to the lower openings of the body.

CHAPTER II.

THE ORDER OF OPERATION.

In all cases of chronic disease the lower orifices of the body will usually be found to be affected by some form of local lesion. Sometimes the affection is extensive, at other times it is but slight. In these cases the question of what to do in the matter of local treatment, how much to do, and in what order it should be done, at one operation, is an important one. If the forms of irritation found in a given case are very slight, requiring merely a light smoothing of the surfaces and free dilatation of the sphincters, what may be called all-around work is almost invariably called for, and should be done at a single sitting. Let me describe the order of procedure that I would recommend in such a case.

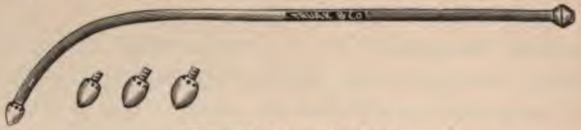
Supposing the patient to be a male, after having made all preliminary arrangements, and having placed the patient in position, attention should first be given to the sexual organs. If the foreskin is too tight, make a longitudinal slit along the dorsum to a sufficient extent to secure a proper amount of freedom, which will usually be as far back as the margin of the corona glandis. If it is too long, even although not in the least constricted, amputate it. The extent of amputation will be described in the chapter on the male sexual system. If, upon retraction of the foreskin, the frænum is so short as to depress the point of the glans penis, sever it and tear the edges of the wound apart with the thumbs until all tendency to constriction is overcome. If the caliber of the meatus does not equal that of the urethra beyond it, slit it open until it does, rather overdoing it than underdoing it, the accurate test for undue constriction being the Otis bulb sounds.

Next, pass male sounds of increasing sizes, one after the other, being careful to carry them well into the bladder until the urethra is dilated to its capacity. This will require a No. 18 in some cases, and in some cases a No. 20 or 22, English scale. After dilating to the proper extent, pass a No. 12 or 14 sound, well smeared with soap, and if, upon withdrawal, it is found to be covered with strings of mucus, clean the sound, again cover it with soap, and continue to pass it in this way, time after time, until the urethra is well cleared of its mucus.

CHAS. TRUAX & CO.
DEALERS IN
SURGICAL INSTRUMENTS
CHICAGO, ILLS.

OTIS BULB SOUNDS.

Then, douche the urethra thoroughly with warm, borated water, after which, by means of the irrigator, douche the point of the glans penis with warm water for two or three minutes for the purpose of relieving the congestion caused by the passing of sounds.



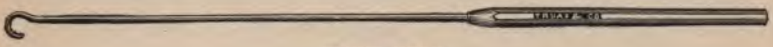
URETHRAL IRRIGATOR.

If the patient be a female, my plan is first to break up all adhesions of the hood of the clitoris to the clitoris itself. If the hood be swollen and elongated, amputate it. If contracted, but not hypertrophied, simply slit it well up to the union of the mucous membrane and the glans. All smegma confined by the hood should be scraped away carefully with a spoon, and the part thoroughly cleansed.

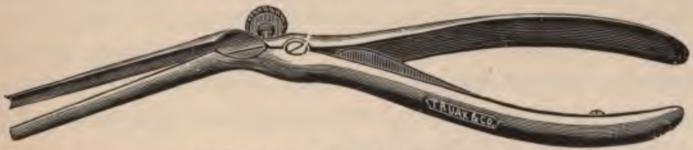
T-FORCEPS.

Next, examine the labia minora. If they are found to be redundant, or if upon pinching them with a pair of T-forceps the respiration is profoundly affected, amputate them by means of T-forceps and scissors, being careful either to torsion or ligate the arteries of the labia minora, as otherwise secondary hemorrhage is liable to follow.

Next, examine the orifice of the urethra. In those cases in which the meatus is pouting and swollen, it is not an uncommon thing to find the mucous glands so enlarged as to form pockets capable of detection by a small blunt hook similar to the one used in rectal work. All such pockets should be removed in the manner indicated for the treatment of rectal pockets in the chapter upon that subject. Occasionally the margin of the meatus is deeply fringed with minute shreds of mucous membrane. These should always be removed with the scissors. If the orifice presents a caruncle, this should also be amputated with scissors applied well at its base. The point of the caruncle is to be seized with a tenaculum, and its amputation becomes a very simple matter. By means of a urethral bivalve speculum, or the graded female sounds, I should then dilate the urethra to its capacity, which will probably be a No. 21½ or 23, English scale. I do not believe it to be bad practice, in case the orifice presents a considerable degree of roughness and hypertrophy, first to dilate the meatus and then lay it open with a pair of scissors or bistoury for half an inch or more, so that the inner surfaces of the opening can be brought well into view for a thorough smoothing up.



BLUNT HOOK.



URETHRAL BIVALVE SPECULUM.

The slit in the meatus can then be brought together with sutures and a very neat result secured.

The hymen, especially in the unmarried, is often a great source of irritation, and requires removal if it is either ragged or hypertrophied. In women who have borne children, it is quite common to find the carunculæ myrtiformæ, which mark the ruins of the hymen, irritable. In such cases they should always be removed, so as to leave the vulva perfectly smooth and free from irritation.

The vagina should then be thoroughly examined for constrictions. In unmarried women these are quite common, especially at the vulva and opposite the end of the cervix uteri. The rectal bivalve is a very convenient instrument for securing the proper degree of dilatation, which, of course, is to be to the capacity of the vagina. At this point of procedure, seize the cervix with a tenaculum and practice uterine dilatation after the manner described in the chapter on the female sexual system, being careful to secure a smooth endometrium by the swab or the curette, as the case may be. The question of laceration of the cervix will be discussed in another chapter. Before removing the vaginal speculum, thoroughly douche the uterine cavity and then direct a stream of water against the end of the cervix, in order to relieve the congestion due to manipulation of the parts. After the removal of the speculum I should carry the practice still further, and allow a stream of warm water to play over the pudenda, directly against the clitoris and its hood, against the urethra and the rest of the vulva, keeping up the douching for a period of two or three minutes.

The next thing in order is to explore the rectum and remove all pockets, papillæ, and other forms of rectal pathology. Also relieve the patient of any accumulation of hardened feces, which is a very common condition, especially at the sigmoid flexure. Last of all, practice thorough dilatation of the two sphincters ani.

The dilatation of the sphincters seems to produce a more profound effect upon the general circulation than the work upon the sexual system. For this reason, I should reserve it to the last, so that the flushing of the capillaries of the skin and mucous surfaces, which invariably follows, may relieve all congestion caused by the previous manipulation of the sexual system.

The operative procedure already described applies to cases in which the conditions are of moderate intensity. But in those cases in which the local conditions call for severe operative procedure, especially if the patient is considerably reduced, it will not be advisable to go through with it all at a single sitting. There may be a hemorrhoidal condition, calling for a modified Whitehead, clamp, or American operation.

There may be a laceration of the cervix. There may be a laceration of the perineum. There may be extensive lesions to correct at the meatus urinarius. In cases presenting so many serious conditions, I should advise at the first sitting the performance of the rectal work alone, leaving to a subsequent operation, three or six months later, the completion of the work of repair.

The sympathetic nerve holds in close bond of union all the structures which it supplies. This is especially true of the lower orifices of the body. The rectum and sexual system are so intimately associated that they suffer simultaneously, and in repairing them this principle of mutual relationship must be constantly borne in mind. It is not to be expected that a deranged sexual system can be put in repair while a faulty rectum is permitted to remain unrelieved. This is a mistake that has too long been made by professional gynæcologists. Neither can it be expected to cure a diseased rectum so long as any derangement of the sexual apparatus remains uncorrected. This mistake is a common one on the part of rectal specialists. Bear in mind that the work is orificial, and not simply rectal or sexual. In the chapter on the female sexual system the question of nerve distribution will be more thoroughly discussed, and the reason for the present statement more fully given.

My reason for advising the performance of rectal work first, in those cases which are too severe to permit operations upon all the affected parts at a single séance, is that I deem rectal irritation more extravagant of nerve-waste than almost any form of sexual drain. The proper foundation for successful work on the sexual organs is a rectum which has been put into as perfect condition as possible. The first attention, therefore, should be given to this organ. Three months is not too long to wait after a severe operation upon the last inch of the bowel, before attempting any severe operation upon the sexual organs. It will take fully that time for the patient to regain reactive power after the shock occasioned by a severe operation upon the rectum. If the case is so extensive that it calls for amputation of the hemorrhoidal inch, operation for laceration of the cervix, and also for laceration of the perineum, it is advisable to perform three separate operations three or six months apart, beginning with the rectal work and ending with that upon the perineum. Of course, in patients possessed of a fair degree of general health and an abundance of reactive power, any two of these operations may be hazarded at a single séance, but it is a hazard, and is not advisable except in rare cases.

There is one fact which I am sure the experience of all will verify, that in cases presenting severe local troubles there is very apt to be a minimum degree of disturbance to the general health, and such cases almost invariably get along well after operation. But in the large majority of patients who are badly debilitated and suffering from serious organic lesions in parts of the body distant from the orifices — as in lung, heart, spinal-cord, skin and mucous membrane — the metastasis of irritation has also caused a metastasis of congestion, and the orificial surgeon will be confronted with a set of tight sphincters having very little apparent cause for their tension. He can safely predict in such cases that, whereas his work may relieve the distant troubles which they are intended to correct, they will, to all appearances, induce a much severer form of local troubles than the ones he has attempted to correct. It need not surprise him if a rectum which simply presents a few pockets and papillæ, with their invariably accompanying tight sphincters, develops, after operation, a more or less severe case of hemorrhoids, which will require a second or third operation to eradicate ; a uterus whose only fault at the time of the operation was an unduly constricted state, accompanied, perhaps, by the presence of a few granulations on the endometrium, may become excessively irritable and congested ; a urethra that was pinched and apparently atrophied, after operation may be followed in a few days or weeks by a mild form of urethral fever. The time of its appearance will depend upon the reactive power of the patient after the operation is performed. He need not be alarmed at such results, as it is but one of the legitimate stages through which the patient must pass to recovery. The local irritation which he has apparently caused will continue more or less obstinately for weeks, and sometimes for months, until all the reflex symptoms for which he operated have long since passed away. The last step in the recovery of such a patient will be the disappearance of the local symptoms which the surgeon has apparently induced.

But after these symptoms have once disappeared, to the gratification of both patient and surgeon it will be found that the life of the afflicted individual has been most thoroughly and radically renewed, that malnutrition has been corrected, and the increased health and vigor of the protracted case will be an ample reward to both patient and doctor for the inconvenience which the mode of recovery has occasioned. A knowledge of this fact is exceedingly important in the matter of prognosis, and the length of time required for a case is pretty nearly proportionate to the distance along the sympathetic nerve to which the reflex of irritation and congestion has traveled. Stomach, liver and bowel troubles require less time than lung and heart troubles. These latter yield much more quickly than neck and head troubles ; and neck and head troubles in turn are more speedily repaired than serious affections of the bones or soft tissues of the hands, and these more quickly than those of the feet. If a patient can be made to understand the different stages through which he must pass to recovery, he will endure his trials with a greater degree of patience and fidelity to his physician than if they appeared to him as unlooked-for occurrences. Bearing in mind, then, the suggestions of the present chapter as to the order in which orificial work is to be performed, we will next consider the rectum and its ailments.

CHAPTER III.

THE RECTUM.

This part of the lower bowel, the rectum, extends from the lower extremity of the sigmoid flexure of the colon to the anus, and is very properly divided into three portions. The third, or last portion, is the part included between the two sphincters, and inclosed in their grip. It varies in length from one-half inch to one and one-half inches.

As the irritation of an organ starts at its mouth, the last inch is the only portion of the rectum which properly calls for consideration in the present treatise. The upper part of the rectum, it is true, is subject to pathological changes, and is frequently the seat of strictures, ulcers and tumors of various kinds, including cancers, but such troubles are already treated of in standard text-books, and do not call for consideration here, the object of this work being to present, not a recapitulation of old literature, but a new philosophy and new methods of carrying it out.

A diseased condition in any portion of the alimentary canal will never be found unaccompanied by irritation of its lower orifice. Hence, whatever form of pathological lesion may call for surgical attention anywhere in the intestinal tract, the operator should never forget, first of all, to give proper consideration to the last inch of the bowel.

Confining our attention, then, to the lower third of the rectum, it may be well to state that in a normal condition of this part it is dilatable without pain, and when dilated presents a perfectly smooth, pearl-colored surface. When, upon examination, such a rectum is presented for inspection it will need no service at your hands. Every rectum which does not present this appearance, however, is a candidate for surgical attention until it is brought to its normal condition of dilatability, smoothness and pearl-color. In a word, therefore, the work which I shall detail in this chapter consists in smoothing places which are rough, in removing tissue which is hypertrophied and redundant, in healing spots that are inflamed and ulcerated, and in securing dilatation for parts that are unduly constricted. This involves the consideration of a considerable number and variety of rectal disorders. Some of these have received serious consideration on the part of surgeons from the very beginning of surgical practice. Others, however, have attracted attention only since the orificial philosophy has disclosed their significance. The reason for this is obvious. Lesions of the anus, by disturbing the cerebro-spinal system of nerves, produce sensations of pain and irritation so distressing to the patient as to cause him to demand a local examination and the use of local measures for his relief, and without symptoms pointing to a local disorder surgeons have not been in the habit of exploring the rectum, trusting to the ability of the part, when needing surgical attention, to complain in the language of its own sensations.

An inch above the anus, however, in the locality which lies within the grip of the internal sphincter, the mucous membrane is almost wholly unprovided with cerebro-spinal filaments, and is, therefore, capable of undergoing extensive degenerative changes without in the least affecting the consciousness of the patient. Disturbances of the sympathetic nerves, which are involved in this latter class of troubles, although they do not make themselves known in the language of pain, greatly disturb the various functions of the body, interfering seriously with its nutrition, but very readily escaping the notice of careless observers.

In all cases of malnutrition, and in local or general bodily derangements, it has long been the practice of careful diagnosticians to institute a critical examination of all the essential organs of health. The importance which the rectum plays in the human economy has been very much underrated. For this reason I would urge that hereafter it be given early and careful consideration when a patient presents himself for examination.

Those who wish to inform themselves on the operative procedures introduced from time to time by eminent surgeons for the treatment of the various forms of rectal diseases, can readily gratify their desire by consulting any of the standard works upon diseases of the rectum. Of these I should give Bodenheimer the first place, Kelsey the second, and perhaps Cripps or Allingham the third. The present work does not pretend to be a résumé of already existing literature, and the reader will find nothing in it except the surgical procedure in each case preferred by the author. When the form of the operation is not original with the author, due credit is given in all cases.

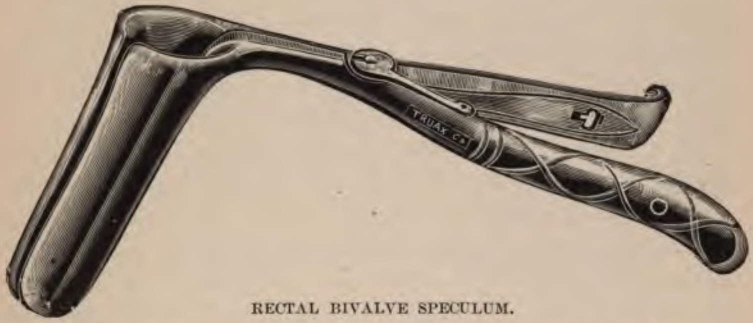
The diseases of which I shall treat in the present chapter are: fistulæ, fissures, prolapsus recti, ulcers, hemorrhoids, pockets, papillæ.

FISTULÆ.

I have nothing to add to the standard classifications and descriptions of the various forms of fistulæ already existing. My object in discussing this subject at all is to present what I regard as the most satisfactory and successful method of dealing with them. The great majority of fistulæ are very simple affairs, being simply a pus-track extending in a more or less tortuous manner from some point between the sphincters to a spot from one-half inch to two or more inches from the anus. The extremities of the track usually present small openings, but lead to a more or less capacious pus-chamber, which occupies the space between them. This is the common, simple, ideal fistula. Of course every surgeon understands that the internal opening is sometimes farther up the gut, and that externally the pus may have burrowed to the surface through various channels, some of which are often situated at quite a distance from the anus, rendering the whole buttocks more or less honeycombed by their ramifications. In all forms of fistulæ, however, there is usually but one central pipe, which communicates with the bowel. It is the improved manner of dealing with this central canal to which I desire to call attention. If this canal be properly treated the diverging ramifications of the fistula, if there be any, are matters of minor importance.

Suppose the case to be one of simple fistula, with its internal opening between the sphincters, and its external opening situated an inch from the anus. The index finger is first to be passed into the rectum and an effort made to locate the internal opening, which is usually marked by a hardened spot of cicatricial tissue presenting a slight depression in the center and easily detected by palpation. In case of failure to detect the internal opening, the finger is to be withdrawn and a probe inserted at the external opening and made carefully to follow along the fistulous track. If this be too sinuous in its course to permit the operator to pass the probe to the internal opening of the fistula without violence, the sinus may be laid open from the outside, and the wound held apart by tenacula so as to give the operator the sense of sight as well as that of touch. As soon as he has succeeded in traversing the entire track with a probe, the upper extremity of the probe is to be bent downward, brought outside of the anus and twisted about the lower extremity of the probe, so that the canal may be at the entire command of the surgeon. It is important to locate the track in this manner at the outset of the operation, as the subsequent handling of the parts is liable to induce a degree of laceration and congestion which would seriously interfere with its accurate location at a later stage.

Attention to the fistula is now, for the time, to be abandoned. The rectal bivalve speculum is to be inserted and the entire surface of the last inch of the rectum is to be explored. All lesions met with in this location are now to be dealt with after the manner to be described. Hæmorrhoids are to be excised, pockets and papillæ removed, ulcers and fissures attended to, and the part then thoroughly douched. Care should be taken, if possible, to leave a strip of membrane unwounded at least one-half inch in width on the side opposite the fistula. In case there is so much redundant tissue about the rectum, or such a profusion of pockets and papillæ as to render it impossible to do this, the radical treatment of the fistula would better be postponed for a few weeks until the parts have fully recovered from the first trimming. Before withdrawing the probe from a fistula, however, it is well thoroughly to dilate the fistulous track by means of the female uterine sounds, and thoroughly to scrape it with a sharp curette. After douching away the débris, the canal should be packed with a small, well-twisted rope of jute, after which the probe can be removed.



RECTAL BIVALVE SPECULUM.

This is not to be considered as a radical treatment of fistula, although in the great majority of cases it proves to be so, since the dilating, the curetting and the stimulating effect of the jute institutes nutritive changes sufficient for its repair and it is, in many cases, by no means an unsatisfactory method of dealing with fistulæ.

In other cases, if the surgeon have at his command a galvano-cautery, the following method of treating the fistula will be found to be very satisfactory:

The probe which has been inserted along the fistulous track should be entered with its eyelet extremity upward. A long, straight needle, threaded with fine steel wire, is now made to pierce the integument about half an inch beyond the external opening of the fistula and made to traverse the tissues in such direction that its point can be made to appear at the internal opening of the fistula. The needle is now to be drawn through and unthreaded. The wire thread is now to be passed through the eyelet of the probe already inserted, which in turn is to be withdrawn, thus making a wire loop to encircle the outer wall of the fistulous track. The two extremities of the wire are now to be attached to the galvano-cautery and the force of the battery applied until the wire is sufficiently hot to cauterize its way to the surface. This procedure does not enlarge the internal opening of the fistula, but renders the track of a triangular shape, the base of the triangle being on the surface of the body. It is now to be packed with absorbent cotton or jute, which is to be renewed from day to day until it has entirely healed from the bottom by granulation.

If, however, it is possible to do justice to the condition found in the last inch of the bowel and still leave unmolested a half-inch of the mucous membrane on the side opposite of the opening of the fistula, I very much prefer the more radical method which I will now describe. The probe is still in the track, whatever trimming the bowel has needed has been accomplished, and the speculum is introduced so as to expose the unbroken stretch of mucous membrane just referred to. At this point the operator is to perform a submucous section of the two sphincters, which is to be accomplished in the following manner: While the speculum is being distended by an assistant, the index finger of the left hand is made to determine the thickness of the external sphincter, and a sharp pointed bistoury is made to puncture the skin. The knife is now to be withdrawn and a probe-pointed bistoury is to be entered at the opening and carried upward parallel with the gut, passing outside the muscles, until the index finger of the left hand, the knife being held in the right, can feel its dull point just above the internal sphincter. It should be crowded upward against the finger until nothing separates the finger from the point of the knife except the mucous membrane. The sharp edge of the blade which previously has been at right angles to the gut is now to be turned toward it. With the point of the finger still hugging the membrane against the blunt point of the knife, while the speculum is holding the tissues tense, the knife is to be withdrawn with a sawing motion, in this way severing both sphincter muscles. If the operator doubts his ability to perform this severing of the sphincters without wounding the mucous membrane, he can insure success by introducing a grooved director at the same opening at which he entered the knife and passing it upward between the mucous membrane and the muscles until he can make the blunt end rest in the groove of the director. He will now be able to cut all tissues between the knife and the director with perfect impunity, the director successfully preserving the mucous membrane from all danger of being wounded. The speculum is now to be withdrawn and the grooved director is to be passed behind the probe through the fistulous track, the probe removed and the entire track laid open as in the old operation for fistula. Retractors are now made to hold the edges of the wound apart and two or three tenacula are to be hooked into the posterior wall of the track. This will bring the entire fistulous surface well into view, and with a sharp scalpel or with scissors, as the operator may prefer, the entire cicatricial formation which constitutes the track is to be carefully dissected out, thus converting what was an old pus-track into a fresh wound. This wound is to be treated like any other fresh wound, viz, sewed up. Covered stitches are to be passed from side to side at intervals of a quarter of an inch under the surface of the wound and made neatly and perfectly to coäpt its edges.

The object in making a submucous incision through the sphincters on the side opposite the track is to give the parts physiological rest and insure successful healing. Without this the edges of the wound made in dissecting away the track, no matter how nicely coäpted by sutures, would be drawn apart by traction of the shortened sphincters and the operation would be a failure. The wound is now to be dressed as any other wound would be and the patient returned to his bed. As a rule, healing takes place by first intention and the operation proves a great source of satisfaction to both surgeon and patient.

If, instead of there being a simple fistulous track, the buttocks are pretty well honeycombed by pus sinuses, an opening is to be made in the skin at the confluence of the sinuses, which, perhaps, will be one-half inch from the anus. From this point to the opening in the gut there will be but one track, which is to be treated in the manner already described. The branching sinuses are to be thoroughly dilated with the graded female sounds, then curetted and drawn with rubber tubing, the ends of which are to be secured by safety-pins to insure them against slipping. After a period of ten days or two weeks, according to the extent of the excavation made by the burrowing of the pus, the tubing can be removed, after which all of the sinuses will very rapidly heal. This mode of treatment solves very satisfactorily the much vexed question of how to cure a fistula. It is free from danger; it is surgical. After all my experience with it I have no criticism to offer, and, therefore, I confidently commend it to the profession. I do not believe that I was the first operator to employ this method, but I do not know where the suggestion came from, and, consequently, do not know to whom the credit for the operation belongs.

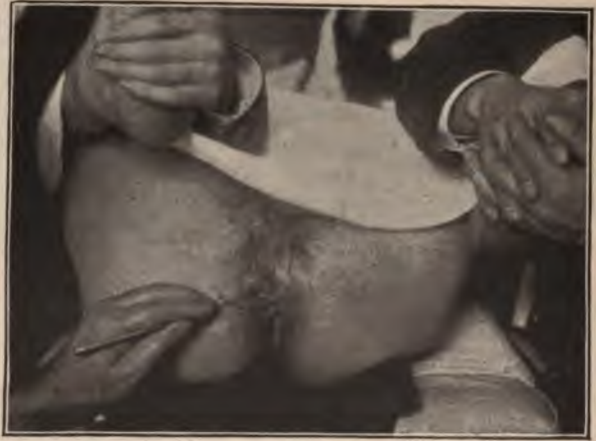


FIG. 1.

The presence of fistula in consumptives is a very common occurrence, and operative procedures have so many times seemed to accelerate the progress of the lung trouble that the sentiment of the laity, as well as that of the profession, is divided as to whether or not it is good practice to operate for fistula in subjects of tubercular tendency. This subject will be considered in a later chapter.

The operations which I have described will be better understood by reference to the accompanying illustrations :

In Fig. 1 the fistulous track has been located and traversed by a flexible probe, which has been brought outside of the bowel and twisted upon itself. This is to be passed to the hands of an assistant to retain it in position, while the operator now proceeds to do what other work in the last inch of the bowel may be required, leaving, if possible, a breadth of mucous membrane half an inch wide opposite the location of the fistula where is to be practiced submucous section of the sphincters.

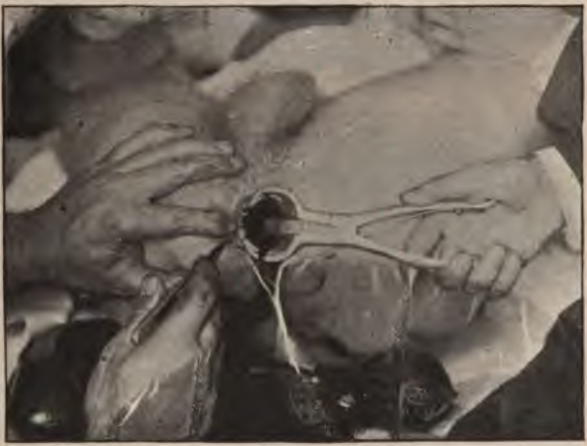


FIG. 2.

Fig. 2 illustrates the first step in the proceeding of making submucous section of the sphincters. The speculum is to be entered and the tissues held tense by the separation of its blades. The index finger of the left hand of the operator, being pressed against the tissues around the anus, ascertains the thickness of the sphincters. While still in this position a sharp-pointed bistoury is made to puncture the integument close to the nail of the index finger. The scalpel is now to be withdrawn.

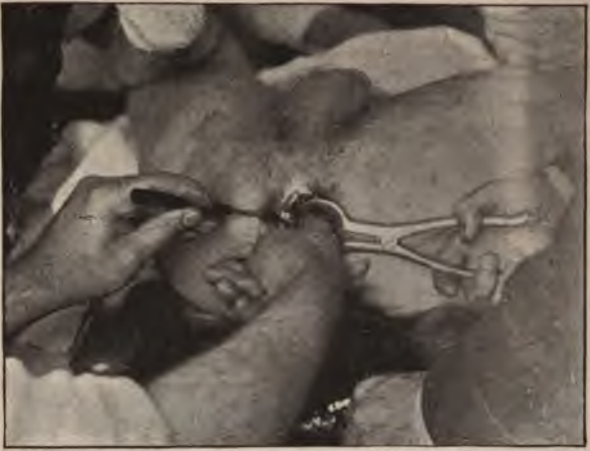


FIG. 3.

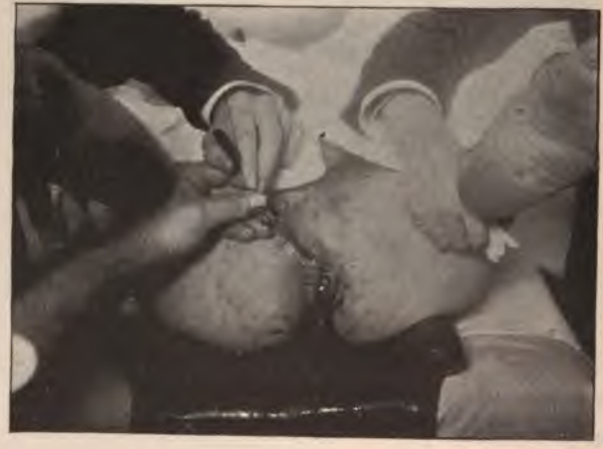


FIG. 4.

Fig. 3 illustrates the next step in the operation. A blunt-pointed bistoury is to be inserted in the opening made by the sharp-pointed knife and is to be pushed upward longitudinally within the bowel in such manner that the sphincter muscles lie between the knife and the bowel. The index finger of the right hand of the operator is now to be passed into the bowel sufficiently to permit its point to curve around the upper

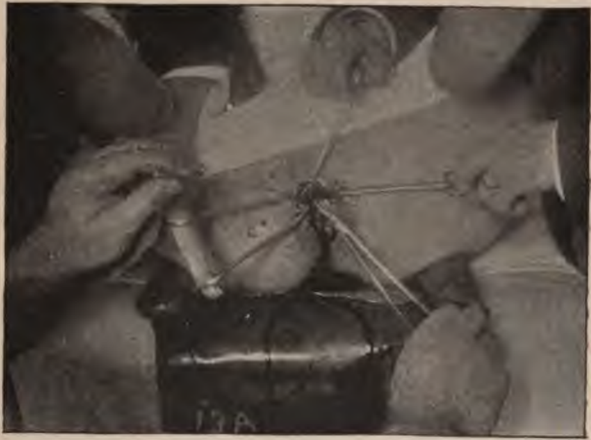


FIG. 5.

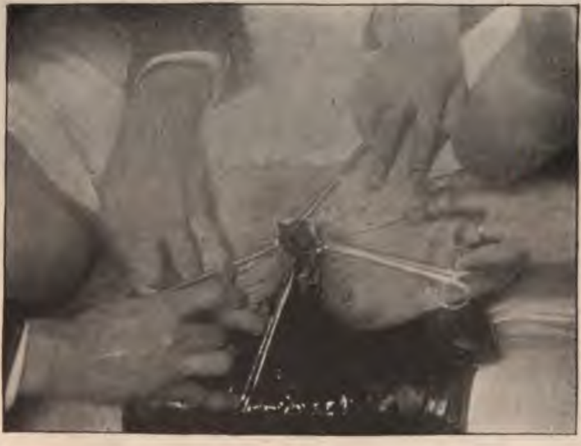


FIG. 6.

sphincter. The knife which is in the left hand of the operator is crowded upward until its dull point is felt impinging against the index finger inserted in the rectum. So far the edge of the knife has been directed upward. It is now to be turned directly toward the bowel and by a sawing motion to be removed, care always being taken not to wound the mucous membrane. The operator is now ready for his treatment of the fistula itself.

A grooved director is to be inserted behind the probe, which already traverses the fistulous track, and the probe is to be removed. A bistoury following the grooved director will sever the tissues. This stage of the operation is illustrated by Fig. 4.

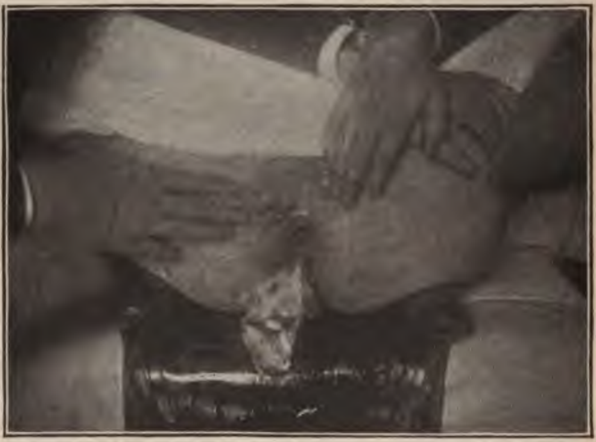


FIG. 7.

Fig. 5 illustrates the margins of the wound secured by T-forceps, and held apart so that the bottom of the track is thoroughly exposed. One or more tenacula are now made to seize the exposed track, and while it is being raised by a moderate degree of tension, either scissors or knife are now employed to carefully dissect out every bit of the inflammatory products constituting the track, thus making an entirely fresh wound of the fistula.

Fig. 6 shows the wound still held apart by the T-forceps and ready to be closed. By examining the cut carefully, fine sutures can be seen to have been already passed. They are inserted about one-half inch from the edge of the wound and are covered in their course, emerging one-half inch from the margins of the wound on the opposite side. They are to be placed about one-half inch apart.

The forceps are now to be removed, the edges smoothly trimmed and the parts nicely coäpted by the tightening of the sutures. This will complete the operation, when the parts will have the appearance presented in Fig. 7.

FISSURES.

Fissures are an exceedingly common affection of the anus and are among the most painful of rectal diseases. They are elongated ulcerations of the anal surfaces, and are usually half within and half without the anus. Their common situation is posteriorly, although they may occur at any point about the anus. There may be simply one, or the entire circumference of the anus may be finely fissured. Where the fissures are numerous they are usually accompanied by more or less pruritus ani; they are merely chronic ulcers, and usually present a denuded and exposed terminal nerve filament somewhere upon their surface. Like fistulæ, they are almost invariably accompanied by some other form of irritation of the rectum, as hemorrhoids, pockets or papillæ. A destruction of the sensitive groove with the knife or cautery, followed by a thorough stretching of the sphincters after the other necessary work has been performed in the rectum, will always cure them.

If there is but one fissure and it is a very large one, it is a good plan to dissect out the entire fissured surface by means of tenacula and scissors, or the knife, thus converting it into a fresh wound, which will readily heal.

If, however, the case be one of many small fissures — especially if it be accompanied by pruritus ani — the case is not so easily dismissed. Supposing the rest of the rectal work to have been done, the treatment which I would suggest for the fissured surfaces is as follows: While the parts are being held tense with the expanded rectal speculum, carefully curette the various tracks, after which dry the surfaces and then cauterize them carefully with nitric acid, C. P. A powder of equal parts of iodol and boracic acid, or, if the surgeon prefer, of iodoform, is to be dusted over the surfaces, and the T bandage applied. The part is to be thoroughly douched twice a day with listerine and water, in the proportion of one ounce to the quart, or stronger, if necessary, after which the dry dressing is to be again applied. In case the pruritus is troublesome, the part may be painted over at any time with a mixture of equal parts of ninety-five per cent carbolic acid and olive oil. An occasional case will require still more vigorous treatment, and the application of a small quantity of blue ointment thoroughly rubbed over the irritable surfaces once in two or three days will be found very efficacious. The patient should without fail be kept in the recumbent position for at least two weeks after the operation, so that the parts may become well healed before they are called upon to sustain the congestion consequent upon the perpendicular position. It is quite common in these cases to find sphincters which have been so long contracted that they are really shortened, and it is good practice in all such cases to sever both sphincters submucously at the time of the operation. This does not weaken the sphincters, but simply lengthens them, leaving their contractile power still intact.

ULCERS.

Ulcers of the rectum are of extremely rare occurrence and are usually syphilitic or tubercular in their origin. A good scraping, followed by the cautery and thorough dilatation of the sphincters, will effect a rapid cure in most cases. Occasionally the American operation will be needed to overcome the condition.

PROLAPSUS OF THE BOWEL.

This condition, uncomplicated with hemorrhoids, will sometimes respond to internal medication, while other cases will need the aid of a surgeon. Thorough dilatation of the sphincters, followed by a course of faradization, or by the method of nerve vibration described in the chapter on After-Treatment, will be all the treatment required to cure such cases. The old method of cauterizing longitudinal streaks with nitric acid or the actual cautery is a sure cure for such conditions, but I believe it can be dispensed with by the aid of the measures indicated.

HEMORRHOIDS.

We come now to the much vexed question of hemorrhoids. Hemorrhoidal veins are of two kinds: (*a*) continuous and anastomosing veins, such as exist everywhere else in the body; and (*b*) another set of veins which begin in blind extremities and coalesce into larger trunks, which finally empty into veins of the kind just described. In Kelsey's admirable work on the rectum, one would infer, from the illustration which he gives of this second variety of veins, that he considers them still an anatomical condition when their extremities present a considerable degree of dilatation, resembling a cluster of cherries upon the stem. A careful study of these little formations compels me to differ with him on this point. I am compelled to believe that in their anatomical state they are wholly tubular in their nature and almost invisible to the naked eye, and that when they become sufficiently dilated to obtrude themselves upon the observation of the dissector they are no longer in an anatomical condition, but have passed on to a pathological state. Hernia presents no special pathological lesions other than the distended and distorted forms of anatomy. Varicocele, although described in every surgical work as a pathological condition, is nothing but overgrown anatomy. Varicose veins of any part of the human body are simply exaggerated anatomy, and it seems to me that these hemorrhoidal formations occupy a corresponding position. Anatomical in their incipiency, they become pathological in their exaggerated dimensions.

In discussing the treatment of hemorrhoids it is convenient to consider them under three divisions — internal, middle and external; by internal hemorrhoids meaning those which are found above the internal sphincter along the middle rectum; by middle hemorrhoids meaning those found in the hemorrhoidal inch between the grip of the two sphincters; by external hemorrhoids meaning those which are wholly extruded from the bowel.

Internal hemorrhoids are usually formed almost entirely by the continuous veins, and constitute simply a varicose condition of the middle rectum, and occur in subjects who show a tendency to varicose conditions of other parts of the lower half of the body, as of the limbs, pudenda or buttocks. Occasionally, however, in very weakened conditions of the rectum there will be found quite a cluster of hemorrhoidal tumors starting above the internal sphincter, and, on distention of the bowel, protruding into it, which are formed almost entirely of the other variety of veins.

The middle and external hemorrhoids likewise consist of an intermingling of these two sets of veins. Hence, a smooth hemorrhoidal tumor which falls into view upon the opening of a recral bivalve speculum, does not, as a rule, consist of simply one large dilated vein, but of several of these tumors, interspersed with several of the dilated extremities of the blind pouched veins.

Acute hemorrhoids, which are usually of the middle or external variety, are hard, hot and painful, and always contain a blood-clot which is situated either within the coats of the vein, which has been unduly engorged and strangulated until the return circulation has been entirely cut off, or else it consists of a small hematocele resulting from the rupture of an engorged vein.

Chronic hemorrhoids of either variety are varicoses wrapped in redundant areolar and mucous tissue, more or less softened and disintegrated, according to the degree of retrograde metamorphosis which the stagnation of blood has caused in the tissues.

TREATMENT.

As regards internal hemorrhoids, there may be those who, from lack of self-confidence, or from choice, would never put into practice the radical method of treatment which I prefer, and for the benefit of such I would recommend what is known as the injection method. It is the method almost universally adopted by Brinkerhoff, Andrews, Ives, Rorick, and many others. It is a very simple process, and for proper performance no special set of instruments is necessary. Any speculum that will bring the last inch of the rectum into view will expose the tumors, and an ordinary hypodermic syringe with a long needle will serve the purpose of injection.

Hemorrhoidal tumors may be distinguished from hypertrophied rectal tissue by the fact of their bleeding freely when pricked. Usually their dark purple color also identifies them.

In employing the injection method, in order to insure against the formation of thrombi it is important that the hemorrhoid be surrounded by an instrument exerting more or less circular pressure about its base. In slide specula this is accomplished naturally by the form of the instrument, but if a valvular speculum be used, it is advisable to ensnare the hemorrhoid to be treated in the grip of the circular retractor.

Now charging your syringe with a quantity of whatever fluid you propose to use, thrust the point of the needle well into the pile tumor, and inject the solution slowly. As a rule, too much of the fluid is employed in this injection, and abscesses and more or less sloughing very often follow, a result that is not at all desirable. Any injecting fluid capable of dispersing a hemorrhoidal tumor will accomplish its purpose when used in small quantities fully as well, and with very much less subsequent distress and danger, than when used in large quantities. From two to four drops of any solution should be quite sufficient for a single tumor. Two or three tumors may be treated at a sitting, and the treatments should be at intervals of two or three weeks, according to the condition of the rectum.

This work may be done at the office with comparative impunity. The patient is not confined to his bed. The operation causes but little pain, and but slight subsequent inconvenience, with, perhaps, an occasional exception. If this process took away the redundant mucous membrane which is present, and were not so tedious, I would have a better opinion of it. For my own part, I have not employed it for several years—since, in fact, I came to the conclusion that it was much better to handle a rectum upon sound surgical principles than to temporize with it.

A good injection fluid consists of equal parts of carbolic acid and sweet oil, mixed when the oil is cooled to a few degrees below the freezing point, and subsequently heated. Rorick's injection, which is a good one, consists of carbolic acid and glycerine each two drams; fl. ext. ergot, one dram; water one-half dram, mixed. Another favorite injection consists of equal parts of calendula, glycerine and carbolic acid.

I would advise those who think favorably of the injection method and desire to investigate it to purchase Dr. Edmund Andrews' work on the rectum, in which they will find the whole subject very fully discussed.

Concerning the method of employing the ligature for the removal of the various forms of hemorrhoids, I will simply say that although it is favored by many authorities who report flattering results, it is in such poor favor with me that instead of inviting attention to it, I will simply refer those who may prefer it, to the ordinary text-books of the day, in almost all of which it is fully discussed. In case it is employed, however, let me urge you to be sure and sever the mucous membrane about the base of the pile, and place your ligature in the track of the knife, so as to avoid a needless prolongation of suffering on the part of the patient. To me, the proceeding seems unscientific, and a relic of a past rectal inquisition. Before the invention of rectal specula, which placed the lower part of the bowel entirely at the command of the surgeon by throwing it well into view, I can readily understand why the ligature method might have been in favor; but with the means now at hand for exposing the hemorrhoidal area, there should be no more fear of hemorrhage in the rectum, with proper care, than in other accessible parts of the body, and if a part is sufficiently pathological to require removal, it is much more satisfactory to remove it at a single sitting, and control then and there whatever hemorrhage may be occasioned, than to institute an uncleanly sloughing process with its danger of sepsis, its tendency to induce stricture of the circular fibers of the gut at the point attacked, and its possibilities of secondary hemorrhage at the time of the separation of the slough, which may happen, moreover, in the absence of the surgeon. I greatly prefer the various methods of excision which I shall suggest, because they are simple, free from danger in skillful hands (and no others should touch them), and, so far as my experience goes, are in every way satisfactory in their results.

In advocating the extermination of hemorrhoids by excision I am well aware that I am indorsing a measure which is of very ancient date, and which along the whole line of surgical history has been regarded by eminent surgeons of every age as an exceedingly dangerous proceeding, on account of the great danger incurred of excessive hemorrhage, and of the extreme difficulty of arresting it. If these two dangers—hemorrhage and the inability to control it—can be mastered, the operation of excision would receive, I think, the universal indorsement of the profession. Professor Smith, of Baltimore, says: "Excision of hemorrhoids is the expedient that first presents itself. But for one circumstance, viz., danger of hemorrhage, this would be the shortest and most effectual expedient." Later on, in the same connection, he says: "Were the bleeding parts so located as to be accessible to our remedies there would be no risk, but when a hemorrhoidal tumor has been cut away by the knife, the wounded surface retires within the sphincter and is reached with difficulty." It is this dread of hemorrhage which has reddened the page of every surgical writer upon the subject of the excision of hemorrhoids. Bodenheimer very frankly says: "Were the measures, however, for arresting surgical hemorrhage of the rectum as well understood and appreciated as they by all means should be, and as those are at the present day for suppressing such hemorrhage generally, few fatal cases, in my opinion, would ever be likely to occur, whether either knife or scissors were used."

There are two very good reasons why the operation of excision should have made, hitherto, an unfortunate record for itself. The first was a lack of proper instruments with which to do the work, and the second was the objectionable methods of performing it. I believe that at last both of these serious difficulties have been overcome; and not hurriedly, but after an extensive experience of several years, and in full knowledge of all the pros and cons as fully discussed in the history of surgery, I most emphatically indorse the employment of excision in all cases of hemorrhoidal disease, and if the details of the methods which I shall now present be carefully noted, and the instructions which I shall give be closely followed, it is entirely unnecessary that future records of excision should be marred by the presence of fatal cases.

In the first place, internal hemorrhoids—that is, those situated above the internal sphincter—should never be incised or wounded by scissors or knife except in either the Whitehead, the clamp, or the American operation. Fortunately, they never exist to any considerable size except when accompanied by such redundancy of rectal tissue as calls for the employment of one of these operations.

In the next place, large middle hemorrhoids should never be excised except in the employment of the same operations, or with the assistance of the galvanic cautery or a small clamp. Fortunately here, also, a large middle hemorrhoid seldom exists singly, but is usually accompanied by such a morbid condition of the remaining part of the pile-bearing inch as to necessitate the destruction of the entire mucous membrane covering the inch.

Of course no one would hesitate to employ excision in external hemorrhoids, because whatever hemorrhage occurred would be so superficial as to be entirely within the control of the surgeon. Where there is but a moderate degree of hemorrhoidal enlargement and an entire absence of redundant tissue, dilatation frequently practiced by means of the new rectal dilators, or more thoroughly undertaken, as in the French method to be described later, will be sufficient for their extinction, and no cutting will be required.

In the third place, no operation for the radical cure of hemorrhoids should be undertaken without the employment of an anæsthetic.

Small hemorrhoidal tumors of the middle variety, when accompanied by a moderate amount of redundant tissue not sufficient to justify complete destruction of the pile-bearing inch, can safely be excised in the following manner: After dilating the rectum to the capacity of the bivalve, a tenaculum is made to pierce very superficially the lower part of the hemorrhoidal tumor. A pair of scissors is now employed to remove a narrow strip of membrane over its entire length, which in all cases will be scarcely more than half or three-quarters of an inch, at most. The tension caused by the dilated bivalve will now spread these edges apart, and into the bottom of the wound will appear one or more of the dilated extremities of those hemorrhoidal veins which have their beginning in blind extremities. These little enlargements, which resemble both in size and color an ordinary grape seed, may now be carefully clipped off. By breaking up the areolar tissue at the bottom of the wound with the point of the closed scissors, every one of these enlargements can be brought into view and clipped off with perfect impunity, and after the last one has been removed, the pile tumor will have disappeared. Occasionally a varicose condition of the vein which accompanies the artery to the part will present itself, but it also may be snipped out without the occurrence of excessive hemorrhage, provided that care be taken not to wound the arterial twig which lies in close contact with it. In other words, the operator should confine his clippings to the twigs of the venous tree, instead of making deep gashes at random in the hemorrhoidal enlargement. By following this plan at short intervals around the entire circuit of the bowel, full justice can be done to quite an extensive hemorrhoidal condition. If an operator meets with any great amount of hemorrhage in this proceeding it will be because of a misunderstanding as to what is meant by large and small hemorrhoidal tumors. What, in my estimation, would be large tumors, in his estimation would probably be small ones, and hence he might be led to undertake a more formidable proceeding than I would think justifiable. But should such a mistake be made, and an arterial twig be snipped so as to occasion a good sized stream of blood, by the aid of the bivalve and hemorrhoid forceps at his command, it would not be a difficult matter to seize the bleeding surface, draw it well into view and apply torsion, or ligature, if preferred, to the wounded vessel.

But hemorrhoids of any considerable size seldom occur singly, and are invariably accompanied by such a hypertrophy of tissue as to justify the complete destruction of the pile-bearing inch, and covering the exposed surface with new and healthy tissue brought down from above. Fortunately for the operator, the mucous membrane of the bowel is so redundant and so loosely connected to the muscular coat by very fine and abundant areolar tissue, that it is always possible to spare from one to three inches of the lower part of the mucous membrane, and to replace it by drawing down a sufficient quantity of the membrane above to cover the denuded surface, without exercising any undue tension upon the mucous membrane, or in any way interfering with the normal function and usefulness of the bowel.

Granted, then, a condition of hemorrhoids too extensive to be safely attacked by the simpler process already suggested, and presenting such an amount of hypertrophied tissue as to render an amputation of the pile-bearing inch desirable, allow me to call your attention to three methods by which this can be accomplished neatly, effectually and safely.

The first proceeding to which I desire to call attention is a clamp operation. Although clamps of some kind have been employed for the extinction of hemorrhoids for many generations by different operators, still, the operation which I desire now to present is so much superior to all others that I have ever read or heard about, that I deem it essential to give it in detail. It is a comparatively bloodless operation, and will not be found difficult of performance if the instructions are carefully followed.

The patient is to be anæsthetized, placed in dorsal position with the thighs well retracted over the abdomen, so that the legs below the knees are parallel with the body, the knees slightly separated, and the buttocks placed upon an operating pan and drawn well down to the edge of the table. Inasmuch as this is the position I prefer a patient to take for any form of orificial work, I desire to call attention to it now, so as to save the necessity of again describing it. Supposing the sexual orifices to have already undergone inspection and to have received proper attention, the rectal bivalve is now to be inserted into the bowel and the rectum thoroughly cleansed of all impurities by means of a douche of a saturated solution of boracic acid. As soon as the parts are well cleansed, thorough dilatation of the sphincters is to be secured by means of the bivalve, and in case the rectum is unusually large, and the capacity of the instrument is insufficient to overcome the tension of the sphincters, the operator's index and middle fingers, inserted so that the backs of the hands are in contact, may be employed to carry the distention to the point of complete relaxation. A slight yielding of the sphincters, due to a slight rupture of the muscular fibers, will usually be felt when this latter method is employed. In securing dilatation with the bivalve, be careful to avoid all haste and unnecessary violence. A vibratory action of the instrument is much preferable to the use of steady pressure. In male subjects the tuberosities of the ischii will very frequently be found in such close proximity as to make it impossible to secure the proper degree of dilatation when practicing it laterally. In such cases it will be necessary to apply the force in an antero-posterior direction, and care must be taken to point the blades well backward so as to avoid bruising the prostate. Dilatation having been secured, a pair of hemorrhoidal forceps is made to seize the center of the mass of redundant and hypertrophied tissue which swells out between the blades of the speculum. The speculum should now be withdrawn, and the part which has been seized by the forceps made to evert from the bowel by gentle traction. The speculum is now to be inserted in a position at right angles to the former one, and by similar process another hemorrhoidal tumor is to be seized and brought into view. As all the hemorrhoidal and hypertrophied tissue is entirely superficial to the muscular coat, there is little danger of seizing the parts too deeply.

The circumference of the rectum is to be exposed and treated in like manner until the complete circuit of the bowel is made, and the entire rim of the offending tissue is extruded from the bowel and secured at short intervals by hemorrhoidal forceps held in position by assistants. The hemorrhoidal forceps should seize the tissue to be removed exactly in the middle line, because if they were attached higher the mucous membrane would be too short when amputated, and if their seizure were at the juncture of skin and mucous membrane, too much of the redundancy of tissue would be left after the operation was performed.

The bowel has now been cleansed, the sphincters thoroughly dilated and the speculum removed. The condition presenting itself is a more or less thickened ring of tissue held in extrusion by the forceps as above described. If this rim be carefully examined it will be found to be somewhat uneven in its outline, there being usually two or three places where there is less redundancy of tissue than elsewhere. In other words, this circle of hemorrhoidal tissue seems at fixed intervals to be divided into from two to four segments.

The operator should now deepen the grooves which mark these natural divisions either with a pair of scissors or a scalpel, cutting through both mucous membrane and skin and all intervening structures, until the bottom of the wound is on a level with a flat surface of the skin covering the buttocks.

This wound will not sever any muscular fibers and will occasion but little hemorrhage. One of the segments into which the ring has now been divided, and to which two or three pairs of hemorrhoidal forceps are attached, is to be held in a straight line by proper manipulation of the forceps in the hands of assistants, and the clamp is to be applied to the part and closed down.

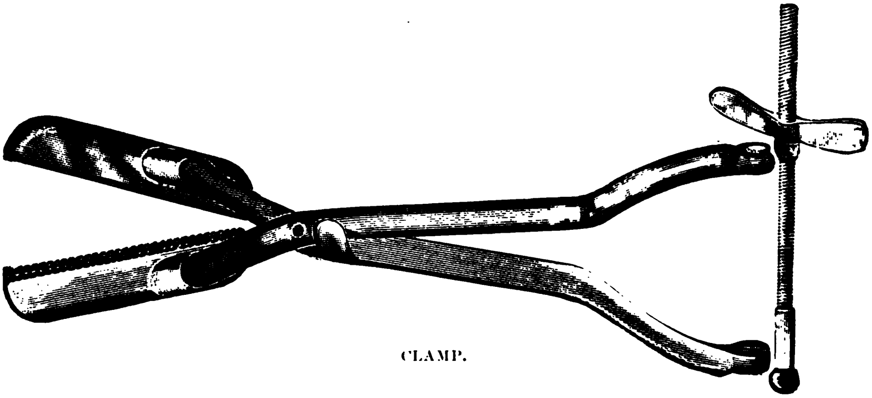
Never forget at this point to have the anæsthetic removed from the face of the patient, and as the clamp is tightened watch carefully the effect produced on the respiration. Sometimes the tightening of the clamp occasions so violent and continuous spasmodic closure of the glottis as to endanger the life of the patient unless extreme care is exercised. If the patient is at all susceptible to the handling of these tissues the fact will already have been disclosed during the process of dilatation and seizure of tissue by forceps, so that the operator can anticipate about what to expect from the application of the clamp. Should interference with respiration be very profound upon the application of the clamp, it should be immediately removed and the patient permitted to rally before it is re-applied. Sometimes even a second removal will be necessary before the operation can be proceeded with in safety. Commonly, however, all the precaution that is necessary will be to stop the anæsthetic until the patient has rallied from the first application of the clamp. The anæsthetic can then be renewed with safety.

In applying the clamp care should be exercised by the assistants not to practice too much traction with the hemorrhoidal forceps, and before tightening the blades the outer one should rest loosely against the surface of the buttocks. This position of the instrument will insure the operator against danger of seizing the external sphincter within the grip of the clamp. The clamp which I have employed for this purpose is a modification of the old Nott clamp, and has always been eminently satisfactory. A cut of the clamp is shown on page 50.

Long, straight needles, threaded with catgut or silk, are now made to transfix the tissue about an eighth of an inch

LANE LIBRARY

above the clamp from within outward and half an inch apart, and after they are drawn through, the ends of the threads are to be held in an orderly manner by the assistants against the buttocks preparatory to their being tied later on. The clamp is now to be removed and the crushed tissue is to be seized with two or three pairs of forceps, and while these are being held straight, and with a slight degree of tension, by an assistant, a pair of scissors is employed to amputate the part along the center of the crushed ridge. If, before cutting, this crushed ridge be examined, it will be discovered that it has been accomplished in the form of three white lines, two of them made by the sides of the blades as they came in contact, and a central one caused by the entrance of the projecting part of one blade as it descended into the sulcus of the other. Care should be taken to cut along this central line of crushed tissue, as in this situation the crushing has been sufficiently thorough to render subsequent hemorrhage impossible.



CLAMP.

The stitches are now to be taken from the hands of the assistants in the order in which they were passed to them, and securely tied. By this means the skin and mucous membrane are fastened together by a few deep stitches which probably pierce to some extent the sphincter muscles, but as no harm seems to result from the transfixion, I have no fault to find with the proceeding.

One segment of the protruding mass after another is now to be seized and treated in like manner, until the last one has been removed. It is better to leave the anterior segment, if there be one, to the last, because the application of the clamp at this point seems to occasion a greater shock to the system and more profoundly to disturb the function of respiration, and it is better to have the last of the work completed before the treatment of this segment is begun.

A few superficial sutures, to bring together the skin and mucous membrane at the parts where the segments were first marked out with the scissors, and also between the deep sutures in the segments, will now be necessary to insure a nice coäptation of skin and mucous membrane at every point.

This operation is, practically, a bloodless one, and is very easily performed by any physician who possesses even a moderate degree of surgical ability. By its aid extremely formidable cases may be very easily managed with great satisfaction to both patient and doctor.

The second method by which one can successfully treat a condition of extravagant hemorrhoids accompanied by a superabundance of mucous membrane and anal integument, is known as the English operation, and was first described, if I am correctly informed, and has been extensively employed, by Dr. Whitehead, of Manchester, England. It is a very ingenious operation, but requires a considerable degree of surgical skill for its performance. Dr. Whitehead has reported several hundred cases operated upon by this method, and in his hands the operation is accomplished with but a trifling loss of blood and with great rapidity. But after considerable experience with this operation I am sure that I am not unfair when I say that the first few operations after this method, even in the hands of a good surgeon, will be quite bloody and somewhat tedious. Experience, however, will in time remove this objection, and I have none but words of commendation for the operation. As some orificialists may take a fancy to this mode of handling the condition under consideration, it will be well to give the outlines of the operation.

After preparing the bowel and dilating the sphincters, in the manner described as the preparatory step for the clamp operation, one is to search carefully for the fine line which marks the boundary between the mucous membrane and the skin at the anus. It will be an irregular line, extending over piles and between them, and up and down tabs which are the ruins of ancient piles and of very frequent occurrence about the anus. With a pair of sharp-pointed scissors or with a knife, make a cut along this line, carefully following its outlines, completely severing the skin from the mucous membrane. By a careful piece of dissection the hemorrhoidal tumors are now turned out of their beds in the meshes of the areolar tissue, proceeding with the dissection from without inward about the entire anus, until all of the hemorrhoidal enlargements have been dragged from their resting places, and are left dangling from the outer surface of the mucous membrane as grapes dangle from a stem. The dissection is carried upwards high enough to secure thoroughness of work, which is usually at the upper border of the internal sphincter. The appearance of the wound at this stage of the operation would be a little confusing to one who observed it for the first time ; a ragged line of severed skin on the outer margin, a broad, wounded circle just within it, and in the very center of the view a confused mass of hemorrhoidal tissue clinging closely to the mucous membrane, which is trying to retract within the bowel.

The next step in the operation is to amputate this entire rim of dangling mucous membrane, together with its veneering of pile tumors. Dr. Whitehead accomplishes this by segments, beginning at the lower part, stopping all hemorrhage as he proceeds, the line of amputation being decided upon by the location of the piles, it being necessary to amputate just above them. As a portion of the mucous membrane and its dangling hemorrhoids is removed, and all hemorrhage checked, it is immediately stitched to the margin of the severed skin and the operation proceeded with in a similar manner until the entire pile-bearing inch of mucous membrane has been removed, and the skin and mucous membrane are nicely coäpted.

The third method which I have to present for the handling of these severe cases of hemorrhoids accompanied with excessively redundant tissue, is one which occurred to me a few months since, and which I have now employed in something over one hundred cases. I am so well satisfied with it that I have no reason to think that I shall ever abandon it in my private work, although I shall still make use of the clamp and the English operations in my public clinics, merely for the sake of being thorough in my methods of instruction. Although the operation is a little difficult of description, aided by the accompanying cuts, which have been made from photographs taken at different stages of the work, I hope to be able to present a fairly clear account of its manner of execution.

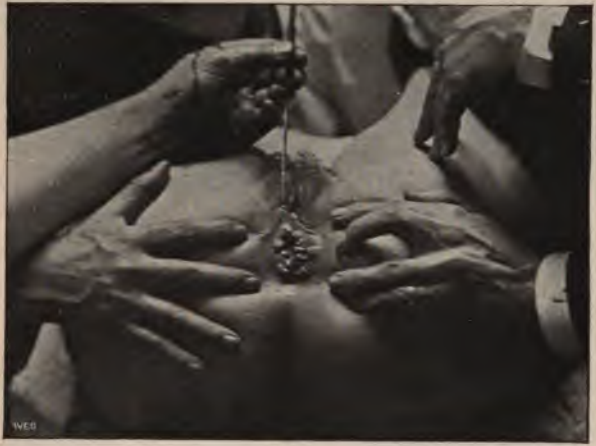


FIG. 8.

Fig. 8 illustrates the appearance of the condition to be operated upon after dilatation has been practiced.

The bowel is to be prepared and the sphincters dilated (Fig. 8) as for the clamp and English operations, and the rim of hypertrophied tissue is to be seized by forceps (Fig. 9) placed at short intervals and held extruded from the rectum by the aid of slight traction (Fig. 10).

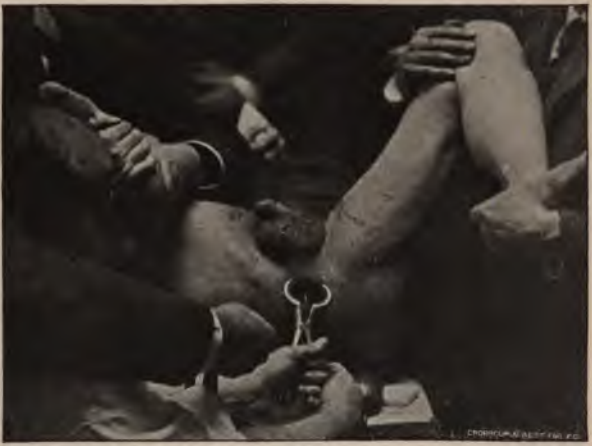


FIG. 9.

Fig. 9 illustrates the first step in the operation, the bivalve being inserted and partially opened, and the T-forceps seizing the hemorrhoidal tissues at the upper part.

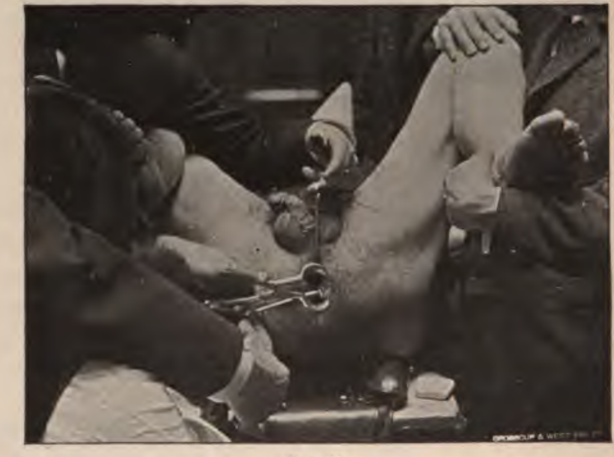


FIG. 10.

Fig. 10 illustrates the second step in the operation, the first pair of forceps being held upward by an assistant, while the speculum is introduced so that the operator can seize a lateral protrusion, this plan being followed throughout the entire circumference of the gut until the view presented in Fig. 11 is seen, where the entire rim of extruded tissue is held symmetrically distended by a circle of T-forceps held by assistants. In this same figure a pair of scissors is being applied to divide the mucous membrane close to the attachment of the forceps, care being taken to cut no deeper than the membrane.

If a careful examination be now made of the surface in view, a fine white line will be observed passing around the mucous membrane on a level with the upper border of the internal sphincter. The mucous membrane above this line will be of uniform color, while that below it will be variegated with lights and shadows, according to the varying degree of congestion of the pile-bearing inch. It looks as if the mucous membrane lining the upper part of the rectum had been a little too short to reach to the integument, and had been pieced down with another strip of mucous membrane slightly different in texture. The line which I describe has the appearance of being a seam, along which these two varieties of mucous membrane are united. If the case presents internal as well as middle and external hemorrhoids, the bulging mass will be distinctly seen above this line. The

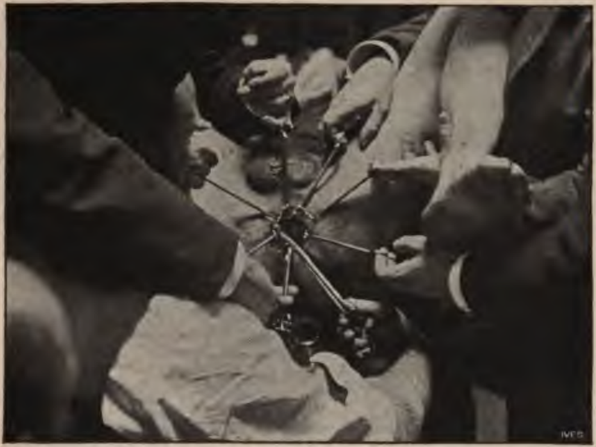
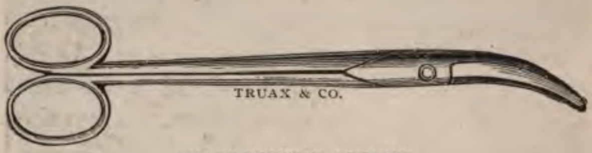


FIG. 11.

mucous membrane will always be found correspondingly redundant, and the operation must be begun high enough up the bowel to insure the destruction of the internal as well as the other hemorrhoids. Of course, I refer to hemorrhoidal tumors proper, and not to varicose conditions of the rectal veins which sometimes reach as far up the bowel as it is possible to make inspection.

As soon as the line along which the amputation of the mucous membrane is to be made is decided upon, the forceps are to seize the mucous membrane along it, forming a complete circle of attachment, and being placed at short intervals. The exposure of the parts is to be made complete and symmetrical by uniform traction by the T-forceps in diverging directions (Fig. 11). One pair of forceps at a time is to be handled by the operator. It is better to begin with the pair nearest the coccyx, seizing this pair with the left hand in such manner as to leave the index finger free to locate the situation of the external sphincter. This sphincter, which can always be felt through the integument with the index finger, must be clearly located, as it is an important guide in the operation.



SHARP-POINTED SCISSORS.

A pair of sharp-pointed scissors, slightly curved at the tip, is now needed, with which the mucous membrane is to be completely severed just above the line of seizure by the forceps. If the tissues be well engorged with blood, many arterioles will be enlarged and need seizure by ordinary artery forceps as they are severed, and treated by torsion or ligature as the operator may prefer. For myself, I have always relied upon torsion, and have had no occasion to regret it. In ordinary cases there will be but three points of hemorrhage which will require attention ; one immediately in front, and the others, one on each side, slightly nearer the front than the back. The forceps are supposed to have but a superficial grip, seizing no deeper than the mucous membrane. When the amputation of the mucous membrane is complete (Fig. 12), the upper part has a tendency to withdraw upward into the middle rectum, and should be allowed to do so as soon as all hemorrhagic points have been well secured. The entire hemorrhoidal mass is now to be carefully dissected from above downward in such manner as to remove all the tissues covering the sphincters, permitting them, however, to remain exposed, but unmolested in their normal position. In making this dissection the index finger of the left hand, which has impinged upon the outer edge of the sphincters (which lie in close contact owing to the traction made upon the bowel), is to be the guide.

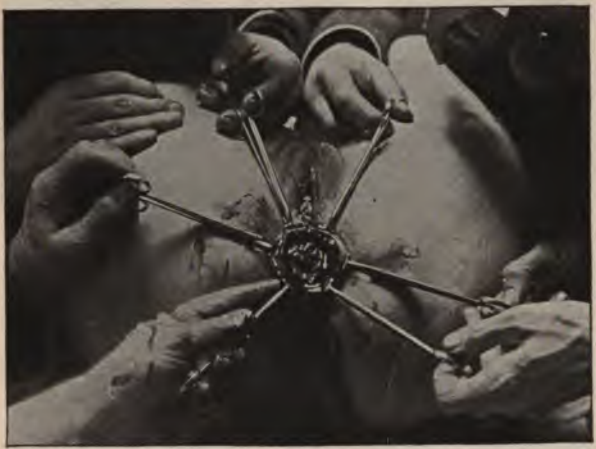


FIG. 12.

Fig. 12 illustrates the appearance of the parts after the completion of the amputation of the mucous membrane. A blunt instrument of some kind, as, for instance, a closed pair of sharp-pointed scissors, is made to tear the tissues from above downward so that the sphincters are completely exposed, the index finger of the left hand of the operator being the guide to the situation of the sphincters.

The view then presented is illustrated in Fig. 13, where the sphincters lie completely denuded of all hemorrhoidal and areolar tissues and mucous membrane, which is drawn downward by the forceps.

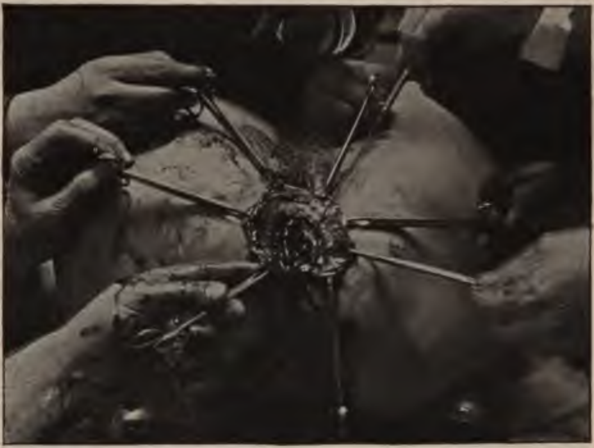


FIG. 13.

Fig. 14 illustrates the next step in the operation, which is the amputation of the redundant tissue.

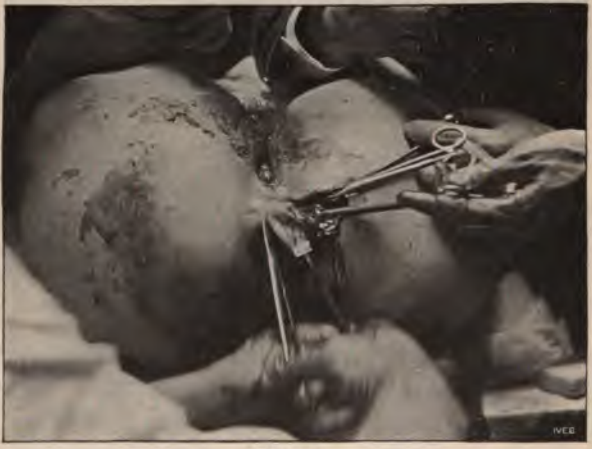


FIG. 14.

It is better to tear the tissues with the closed points of the scissors than to use cutting instruments. The areolar tissue is very fragile and easily broken down, and the sphincters can be very nicely laid bare by any blunt pointed instrument, in this manner separating the areolar tissue from the sphincters. As soon as the muscles are completely uncovered, the mucous membrane which has been severed will be everted from the bowel, the forceps being still attached to the membrane (Fig. 13). This tubular structure, half mucous membrane and half skin, is now to be trimmed away from the anus, leaving sufficient skin to reach as far as the inner surfaces of the exposed sphincters (Fig. 14).

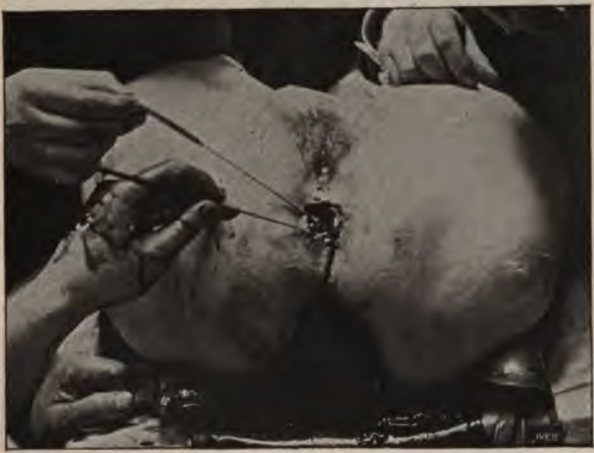


FIG. 15.

Fig. 15 illustrates the appearance of the parts after this amputation, one tenaculum seizing the edge of the skin and the other pointed to the retracted mucous membrane.

There is some danger of removing too much of the integument, so that when the mucous membrane and the skin are subsequently united the tension on the parts will be so great that the stitches will cut through their attachments, permitting the approximated surfaces to separate and expose a rim of denuded tissue which must subsequently heal by granulation. The final result would be perfect, but repeated dilatations would be required to prevent undue contraction, and the recovery would be slow and painful (Fig. 15).

Fig. 16 illustrates the first step in securing the retracted mucous membrane. It has been seized by a pair of T-forceps and brought down.

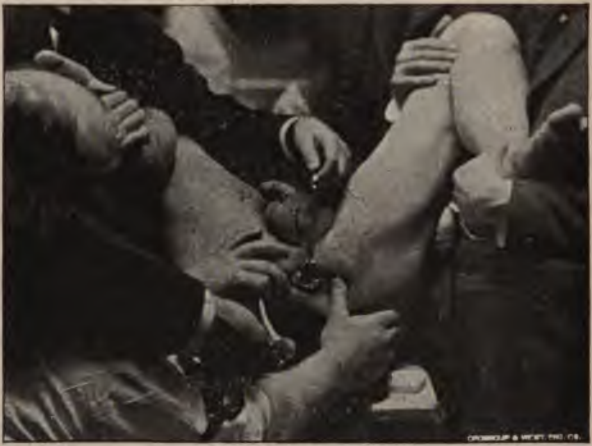


FIG. 16.

Fig. 17 illustrates the still further seizure of the edge of the membrane by other forceps, while Fig. 18 illustrates the completion of this process until the mucous membrane which has previously receded is brought down symmetrically, so as to be coäpted to the severed skin. In this same view the first stitch is being applied upon one side.

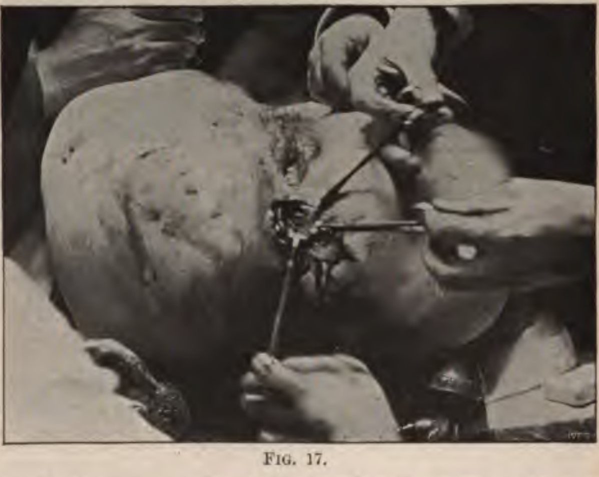


FIG. 17.

The edge of the mucous membrane is now to be fished for with a pair of artery forceps and brought into view (Figs. 16 and 17). By means of the T-forceps the entire circumference of the severed mucous membrane is to be seized at short intervals and everted symmetrically by gentle traction upon the T-forceps in the hands of assistants (Fig. 18). Great care should be exercised not to twist the mucous membrane, but to bring it down in its natural position. Stitches should now be applied, sewing together the severed edges of the mucous membrane and skin. The first stitch can be applied on one side, the second on the opposite side, the third one in front and the fourth below. These stitches would better be left quite long so that they may be used as guy-ropes to hold the parts tense while the intervening stitches are inserted. As soon as these four guy-ropes are in position, all the T-forceps may be removed from the mucous membrane, and the process of sewing completed. A sufficient number of stitches should be applied to secure perfect coäptation of the parts. This will require anywhere from fifteen to twenty-five stitches (Fig. 19).

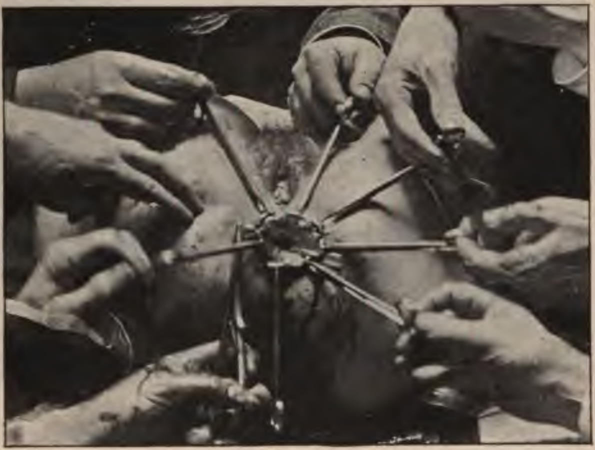


FIG. 18.

The wound after this operation does best under a dry dressing. There are three powders, the use of any one of which gives satisfactory results in securing immediate union. One of these is boracic acid; the second consists of equal parts of boracic acid and iodol; the third is one part of powdered hydrastis and four parts of slippery-elm, mixed together. The best dressing which I have ever found for this or any other wound is silk. It can be prepared aseptically, the same as any other dressing, and after the parts are well dusted with the powder chosen, a square bit of silk can be applied directly to the wound, over which is placed a small wad of cotton which is held in position by an ordinary T-bandage.

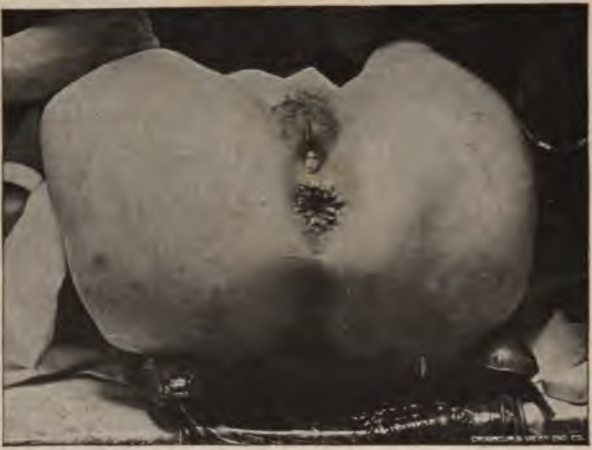


FIG. 19.

Fig. 19 illustrates the appearance of the parts after the completion of the operation.

If a surgeon has never before observed the close nervous connection between the rectum and the urethra, he will have an opportunity to do so in any of these three operations which involves the placing of stitches about the anus. No matter in how normal condition a urethra may be, almost invariably the presence of stitches in the rectum necessitates the use of a catheter for from once to a great number of times, according to the nervous condition of the patient.

There is another symptom which is also somewhat troublesome in this operation — a tendency to spasmodic contraction of the sphincters at very uncertain intervals, surprising the patient by their sudden and painful grip, even while asleep. There are two ways of obviating this trouble: one is by the hypodermic use of morphia; the other is by severing the sphincters at the time of the operation. Severing the sphincters in any one of these three operations cannot be done submucously, on account of the nature of the work to be performed, and I have hesitated on this account to perform it. I have done it, however, a few times and have never had occasion to regret it. It was done in cases of abnormally contracted sphincters where the muscles were so badly shortened by their long continued contraction that a proper amount of dilatation promised to do them so much violence that I preferred to take the risks of cutting them. Many patients are in a condition of anæsthesia and will suffer no great inconvenience from the operation, beyond a slight soreness. Hyperæsthetic patients, however, will suffer extremely, and require the use of some anodyne to render their condition endurable. The distress following the operation lasts but a day or so, after which the patient usually becomes quite comfortable, even without an anodyne, so that there is no danger of establishing the morphine habit in making use of it in the first few days following the operation. The stitches will need to remain from four to six days, according to the reactive power of the patient.

In case the mucous membrane has been so softened by previous subacute inflammation as to permit the stitches to cut their way through before adhesive union has taken place, more or less contraction of the membrane will ensue, leaving a narrow denuded surface which must heal by granulation. No harm comes from this process except the delay in recovery.

The bowels should be moved the day after the stitches are taken out. It is well to give a gentle purgative, as well as to make use of an injection so as to soften the discharges as much as possible. In the course of a week or ten days the patient may be allowed to sit up, except in those extreme cases of malnutrition where repair is sluggish, and the perpendicular position induces a lingering congestion of the parts. Such cases are quite rare, and, as a rule, the patient can walk and sit comfortably in from eight to twelve days after the operation.

The parts should be left entirely unmolested so long as the patient improves in general health and strength and experiences no local inconvenience. A time will come later when some slight interference will be necessary. It may be in a month; it may be in three months, the patient's general condition being the only guide to follow with safety. A very common symptom, indicating necessity for interference, is shortness of breath — a long walk or the climbing of stairs inducing more or less difficulty of respiration. This is due to a contracted condition of the sphincters, and all it needs is a little nicking of the cicatricial band, followed by a thorough use of the rectal bivalve, and the symptom will be immediately removed.

Occasionally the patient will be bothered by an inability to control flatus or fæces, especially if the bowels be loose. When this symptom occurs it is usually an early one, and is due not to any injury to the muscles or the nerves of the part, but simply to the clumsiness of the tissues occasioned by the cicatricial formations and the congestion incident to the work. Free dilatation and smoothing with scissors of any external roughness which may be found will immediately place the bowel under control of the patient. It is well in such cases of torpidity to make use of the Faradic current, applying the positive pole over the sigmoid flexure and the negative to the anus, employing it for five or ten minutes at a sitting. One or two sittings is usually sufficient to completely remedy the difficulty in cases where the dilatation has not already accomplished a cure.

By the "roughness" which may occur about the anus after this operation, I mean this: When parts are very irritable, and when you are operating upon a case of acute hemorrhoids, the tissues will swell between the stitches, and remain swollen so long as to leave the surface in a roughened condition. It is an easy matter to remove these ridges with scissors, and secure an ideal condition of smoothness and dilatability at any time the measure may be deemed prudent in the estimation of the surgeon. For a short interval after either the clamp, English or American operations the patient often complains of a lack of sensation of the part, but as this symptom disappears spontaneously within a short time without any treatment whatever, it only deserves mention to save the operator who is unfamiliar with the work unnecessary anxiety.

The practice of destroying the hemorrhoidal inch in cases where the hemorrhoids are of large size and there is considerable amount of redundancy of tissue, by either one of the three methods just detailed, is extremely satisfactory in its final results and will well repay both the patient and surgeon for all the difficulties and inconvenience of the method. In certain deep-seated affections of the nervous system, as insanity, locomotor ataxia, paralysis, chronic headaches, etc., where deep-seated nutritive changes must be set up in order to arouse the system from its lethargy, I have found it necessary, even where there is no amount of redundancy of tissue about the anus, completely to destroy the hemorrhoidal veins of the last inch of the bowel. There is a neat way of accomplishing this by a modification of the English operation.

The mucous membrane is to be severed from the skin, as described by Whitehead. The hemorrhoidal ramifications are to be torn out of their areolar beds and left clinging to the mucous membrane around the entire circumference of the anus. The mucous membrane is now to be stretched across the index finger, and by means of a pair of scissors the hemorrhoidal enlargements are to be thoroughly excised. There being no mucous membrane to spare, it is now to be carefully replaced and stitched to the integument, as in the new English and American operations. In this way the entire rim of hemorrhoids can be destroyed, and at the same time, preserve intact the mucous membrane. This process is only applicable to cases which present no redundancy of tissue, and which at the same time demand a thorough obliteration of the hemorrhoidal veins for purposes of increased nutrition.

An abnormal tension of the internal sphincter is more detrimental to the health of the human body than that of the external sphincter, because it implies a waste of sympathetic nerve power, which is the force upon which nutrition depends. The sympathetic nerve has brains, represented by its ganglia, but it seems to lack common sense. A throat will try to swallow its own membrane, if it happens to be swollen, as readily as it will a bolus of food. An irritable urethra will struggle in a vain effort to expel itself as readily as it will to empty an overflowing bladder. An irritable endometrium will induce uterine contraction as readily as the presence of a foreign body in the uterus. An irritability of the mucous membrane about the internal sphincter ani will induce a tiresome contraction of the muscles, as though it could be expelled like a quantity of fæces. This habit of the sympathetic nerve is what renders it necessary for all membranes within the grasp of muscles supplied by it to be smooth and free from all sources of irritation.

Two forms of irritation are quite common upon the surface of the mucous membrane covering the internal sphincter ani, which are prolific of more general mischief through the nerve waste they occasion than, perhaps, any other form of orificial irritation. I refer to a series of pointed prolongations of mucous membrane, called papillæ, varying in size from the point of a pin to that of the end of an ordinary lead-pencil, which are to be found along the upper border of the internal sphincter, and also to a series of inverted sacs scattered at more or less irregular intervals about the circumference of the bowel in the same situation, which have received the name of rectal pockets.

PAPILLÆ.

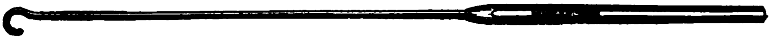
Papillæ are not constant in rectums, and I believe there is now no dispute as to the necessity of their removal when they exist. As a rule they are conical-shaped, the point of the cone being exceedingly sharp, and usually transparent, many times manifesting a high degree of sensitiveness. They are to be transfixed by a tenaculum or seized with a pair of forceps and snipped from the mucous membrane at their base. They contain a central artery, which, in large sized papillæ, shows a tendency to bleed quite profusely for a few seconds. As I have never seen the slightest difficulty arise from removing papillæ under all circumstances by the simple process of snipping them away, I do not deem it necessary to offer any words of caution upon the subject. Should the bleeding be troublesome, the use of a pair of artery forceps would at once check all hemorrhage. In a very extended experience, however, I have never yet had occasion to employ them, although other surgeons have reported their occasional use as being necessary.

Sometimes the tip of a papilla will undergo cell proliferation to such an extent as to render it club-shaped, thus constituting a polypoid growth. But whatever shape they assume they should be cut away with sufficient thoroughness to render completely smooth the surface which they occupied.

Some rectums will present a single papilla, while occasionally they will appear in such a continuous row as to constitute a ragged fringe completely encircling the bowel. It is quite common for a hemorrhoid to be surmounted by a papilla, in which case the papilla will be removed in the treatment of the hemorrhoid, according to some one of the methods already detailed.

RECTAL POCKETS.

Although rectal pockets are found more or less abundantly in the great majority of rectums, still, they are by no means constant, and scarcely a week goes by that I do not observe rectums entirely devoid of them. They are exceedingly irregular in number and in location, varying from one to sixteen, the latter being the highest number that I have ever observed in one rectum. Their location is the same as that of papillæ along the line which marks the upper boundary of the internal sphincter muscle, and their direction is toward the anus, their mouths being upward. For their detection a blunt hook is required, which is to be used through the speculum.



BLUNT HOOK.

Old Dr. Physick, of Philadelphia, who first discovered these pockets, did not have the benefit of a rectal speculum, and used to fish for them with a curved probe, and then snip them away with scissors while the anus remained closed. Even in this crude manner he made very remarkable cures, and elicited considerable discussion in the profession. Had he had the advantage of a good speculum and a knowledge of orificial principles, his work would never have passed into oblivion as it did.

Since my paper to the Illinois Association upon the subject of pockets and papillæ five years ago, considerable discussion has arisen concerning the nature of rectal pockets. By many they are still regarded as anatomical formations, and, consequently, to be permitted to remain unmolested except when found to be in an irritable condition. I believe that the gentlemen who so vigorously defend pockets as anatomical formations have never practiced their removal to any considerable extent, and, consequently, must be unfamiliar with the effect upon the individual of such a proceeding. If rectal pockets are anatomical structures, they are certainly very irregular, awkward and meaningless anatomy. Why should not everyone have them? Why should they vary so in number, and why should their removal be universally followed by beneficial results? They are not a break in the continuity of the mucous membrane.

There are two explanations, one of which may possibly account for their formation. The longitudinal fibers of the rectum, as they approach the anus, usually disperse themselves so evenly as to constitute a veritable muscular membrane, which becomes lost by blending with the fibers of the sphincter muscles. Occasionally these muscular fibers, instead of being evenly distributed, are inserted into the sphincter muscles in bands, leaving a short space of mucous membrane between the bands unguarded by muscular tissue. As fæcal matter is crowded from the large bag of the rectum, above the sphincter, down through the narrow outlet, the tension of these longitudinal fibers forces more or less of the fæcal matter into the mucous pouches between them. At the very point where the most friction takes place, viz, where the internal sphincter begins, the oft-repeated over-distension of this mucous membrane, unprotected by muscular fibers at its back, in the course of time produces prolonged sacs of over-stretched tissue which constitute the broader forms of pockets.

Another, and perhaps more plausible, explanation is that in their incipiency they are merely mucous glands of the intestine, simply being like other mucous glands, microscopical in appearance. Obstruction of the orifices of these ducts, by a swollen condition of their mouths, may lengthen the ducts into tubular formations, which finally develop into fully-formed pockets. In every instance, although pathological in their condition, they are merely in their history exaggerated anatomy. But so is varicocele; so are varicose veins anywhere. Even hemorrhoids are but exaggerated anatomy. So is hernia. And there is just as much excuse for the removal of these pockets, if they prove to be sources of irritation, as there is for operations for varicocele, hernia, varicose veins or hemorrhoids. As for myself, I have never been able to account for their existence, or to appreciate their significance on anatomical grounds, and as their removal is always attended with benefit to the patient, whether they be irritable or not, whether there be one or a dozen, after an experience upon thousands of cases, extending over a period of several years, I am compelled, in honesty to myself, my patients and the profession, to advise their thorough eradication at all times and under all circumstances.

The removal of pockets cannot always be accomplished at a single sitting, as in some cases they show a remarkable tendency to reproduction. This is because the cut surfaces which mark the points of removal are held in such close proximity by the pinching of the sphincters as to again roof over the cavity. The cases in which they are most liable to reproduction, of course, are those in which the sphincters are unduly tense, and the tissues are hugged closely together. A second or third sitting, however, is usually sufficient to accomplish their extermination, and the work should always be followed to a finish. The process of removing pockets is not a painful one, and can easily be borne by the patient without an anæsthetic. The main object in employing an anæsthetic in their removal is to permit a more thorough dilatation of the sphincters than the patient would otherwise be able to tolerate.

The manner of removing them is very simple. A blunt hook is to be inserted into them through a distended speculum, and while the roof is raised by traction upon the hook, a pair of scissors very readily removes the roof of the pocket, thus flattening the surface of the bowel. In cases where they show a tendency to reproduction, it is usually necessary to pierce the bottom of the pocket with the blunt hook and remove a strip of tissue to the margin of the anus. As a rule, however, this will not be necessary, and the removal of the immediate roof of the pocket will be all that will be required to affect its extermination.

The location of either pockets or papillæ under the prostate glands are especially prolific of mischief to the male sexual system. When located opposite the coccyx they are frequently the occasion of spinal congestion. When situated laterally, it is quite common for them to occasion neuralgic conditions of the lower limbs and feet. After the removal of pockets and papillæ, in order to overcome the undue spasm of the sphincters, they should always be thoroughly dilated. In many cases the sphincter muscles have been contracted so long as to be incapable of a proper amount of dilatation without severing their fibers, either by rupturing them with a speculum or by submucous section.

In cases of talipes equinus, if it were possible under an anæsthetic to forcibly flex the ankle, such violence would be done to the muscular structure of the gastrocnemius and soleus muscles as to permanently weaken them. Hence, surgeons have adopted the severing of the tendon as the safest and most satisfactory method of lengthening the muscles so as to permit the heel to assume its proper position. The same reasoning applies to shortened sphincter muscles. Rupturing their fibers is liable to weaken them, whereas their submucous section permits the divergence of the severed extremities, the intervening space being filled by cicatrical tissue which serves as a connecting link between the severed ends, thus leaving the muscle as powerful as before, but lengthened to the proper extent.

One word about dilating the anus. It is, without exception, a necessary procedure in all rectal operations. Where cutting is to be done within the last inch of the bowel it would better follow the cutting, as in excision of hemorrhoids, pockets and papillæ, fissures and ulcers. But in cases where submucous section of the sphincters is practiced, in the operation for fistulæ, and in the clamp, English and American operations, dilatation is the first thing to be accomplished. The manner of its accomplishment is by a vibratory motion of the bivalve, gradually distending the blades of the speculum until the possibilities of the instrument are reached. In the female sex this can almost invariably be done with the blades of the speculum placed laterally. But in males, the tuberosities of the ischii are often so closely approximated as to make complete dilatation of the sphincters impossible in a lateral direction. The blades, in such cases, must be employed in antero-posterior direction, great care being taken not to bruise the prostate gland with the instrument.

Thorough dilatation of the anus, especially if accompanied with a thorough pinching and kneading of the anal tissues, will many times effect a cure of internal hemorrhoids, if the case be not too aggravated.

A statement has gone abroad credited to Professor Vernueil, of Paris, that ninety-five per cent of hemorrhoidal conditions can be cured by mere dilatation. Believing this to be an exaggerated statement, I desired very much to meet Professor Vernueil, and had that pleasure during the summer just past. At the Hotel Dieu Professor Vernueil extended to me an invitation to witness his manner of treating hemorrhoids. His patient was anæsthetized and placed in dorsal position. A large bivalve was inserted, and by means of a firm grip upon the handle the anus was very thoroughly distended, the process occupying scarcely thirty seconds. The instrument was then removed, and the patient placed in bed, the professor remarking that he should never see the case again. I saw in the hospital some of the cases, which had been operated upon a few days previously, and found them suffering from an extensive protrusion of inflamed anal tissue.

The *internes* at the hospital informed me that they remained in this condition for two or three weeks, after which there was a gradual retraction of the protruded parts, and the patient was discharged as cured. The evidence of the cure lay in two facts: That the hemorrhoids no longer prolapsed after an evacuation, and they ceased bleeding. The examination of anal tissues through a speculum, either before or after an operation, was not indulged in, so that, for one, I object to so broad a statement on such insufficient evidence. A little incident occurred at this same clinic which confirms me in this belief. The second case that was brought before Professor Vernueil for the cure of hemorrhoids was, in its nature, identical with the first, and the professor, with the extreme of professional courtesy, kindly invited me to perform the operation. Preferring my own speculum, which I had taken the precaution to carry with me, I inserted it into the bowel, and instead of immediately dilating, as he expected me to do, I began examining the surface. Opposite the coccyx I came across an enormous papilla, whose base was as large as one's little finger, and which presented a large club-shaped extremity, the papilla being fully one-half inch in length. The professor seemed very much surprised that I desired to remove the growth, as he evidently expected to cure it by the mere process of dilatation. But, inasmuch as he never examined his cases afterward, either with or without a speculum, and I had had abundant experience in this direction, I was fully satisfied that he failed to discriminate between this condition and hemorrhoids, expecting it to be remedied by the simple process of dilatation. He very courteously consented to my removal of the growth, after which I illustrated the vibratory method of dilating the sphincters, at which the professor seemed very well pleased. I cannot speak too highly of Professor Vernueil, either as a surgeon or as a gentleman, and only give the details of a part of my experience with him in this connection in order to give my grounds for declining to believe that ninety-five per cent of hemorrhoids can be cured by simple dilatation.

Bleeding and protrusion are not the invariable sequences of hemorrhoidal conditions, and should not be regarded as the only signs of their existence, and the disappearance of these two symptoms when they do occur is by no means complete evidence that the hemorrhoidal condition has been cured. That dilatation, accompanied by thorough kneading of the tissues, will, many times, be a satisfactory method of dealing with mild cases of hemorrhoids, I believe to be true; but to rely upon it as a panacea for all forms of hemorrhoidal conditions is giving it a prominence which it does not deserve.

An occasional case will be found in which the limits of the bivalve are insufficient to properly distend the sphincters. The index and middle fingers of both hands, placed back to back, can, in such cases, be employed to carry the distension to its proper limit, which is to the point of a slight giving way of the muscles, or until the anus is distended until it equals the caliber of the bowel above the sphincters.

Fig. 20 illustrates the first position of the rectal speculum when it is designed to pass it into the sigmoid flexure for purposes of distension and evacuation. The sphincters are supposed to have been already thoroughly dilated so that the flange of the instrument can easily pass within the bowel.

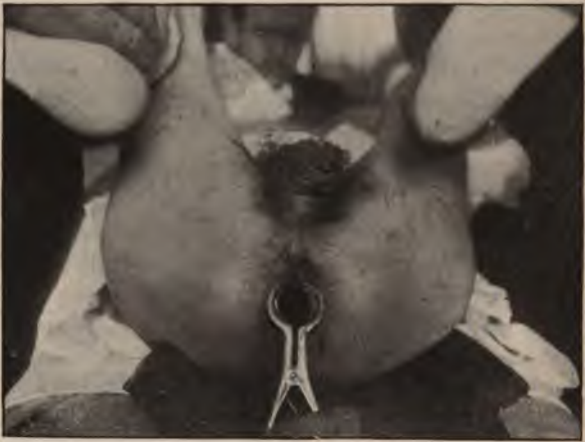


FIG. 20.

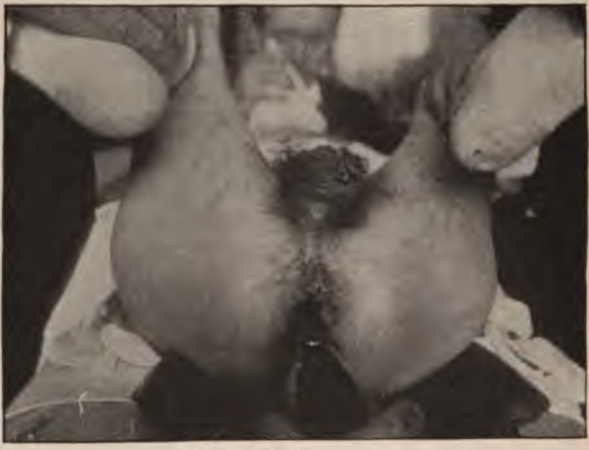


FIG. 21.

Fig. 21 represents the second position of the instrument. It is simply passed a little farther into the bowel so that the flange is entirely hidden from sight.

Fig. 22 illustrates the first turn of the instrument as it is made to pass farther on its way.

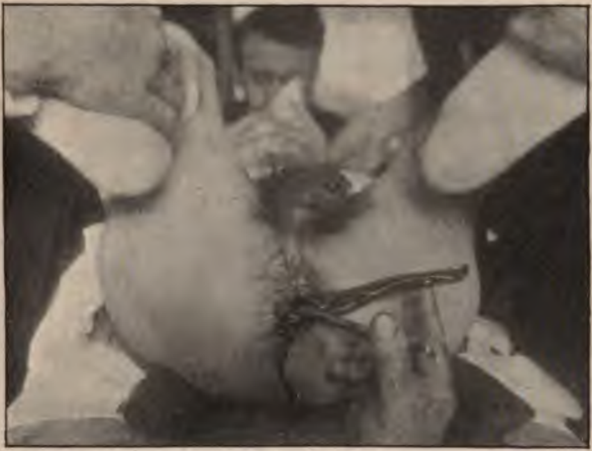


FIG. 22.

Fig. 23 illustrates the second turn which is necessary to enable the instrument to pass into the sigmoid flexure.

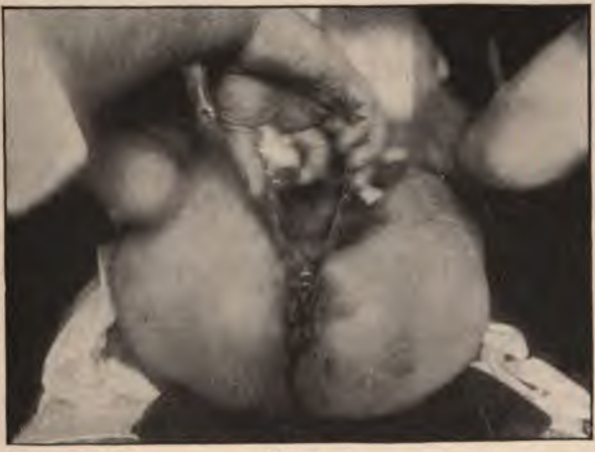


FIG. 23.

The handles can now be gently depressed still farther so as to effect its complete introduction into the sigmoid flexure. The nozzle of the irrigator can now be passed into the bowel, and after a quantity of water has been injected, the blades of the speculum can be alternately partially opened and partially closed, thus thoroughly washing out and cleansing the gut. After the speculum has once been opened care must be exercised not to permit it to close until it has been removed from the bowel, as laceration of the mucous membrane of the bowel will be the almost invariable consequence.

This proceeding is of great value in almost all rectal operations, it being a good plan to evacuate the sigmoid flexure under all circumstances. Occasionally the rectal tissues are extremely tender and easily torn, and this measure is not without danger in careless hands. I have been employing it for some time in all cases upon which I operate, however, and have never had the least occasion to regret it. In fact, better results seem to follow the work since the practice was begun.

For some time past, in all rectal work, it has been my custom, after practicing dilatation of the anus, to follow this by dilating the lower part of the sigmoid flexure of the colon. This I do by aid of the bivalve speculum, as shown in the accompanying illustrations. In accomplishing this care must be taken to handle the instrument so gently as not to lacerate the bowel.

PRURITUS ANI

is an exceedingly common and annoying condition of the integument about the anus, but, as a rule, is very easily remedied. Within the last inch is invariably found some one of the lesions already described, which, of course, should be dealt with. The sphincters, especially the external, are invariably rigid, and call for very thorough dilatation. After operation in these cases a longer period in bed is required than is necessary for others, it being necessary to retain the recumbent position until the parts are thoroughly healed, this sometimes requiring a period of two or three weeks. During this time great care should be taken to keep the parts thoroughly cleansed with a saturated solution of boracic acid. After each douching the part is to be thoroughly dried and well dusted with equal parts of boracic acid and iodol. Should the pruritus fail to yield to this treatment, it will be well to smear the parts over once in two or three days with a mixture of equal parts of olive oil and carbolic acid. Sometimes an application of listerine, full strength, to the parts acts very well, while an occasional case will be found which requires the more heroic application of blue ointment thoroughly rubbed into the surface once or twice a week, before it ceases to be a source of annoyance to the patient. Unless the sphincters be submucously severed in this condition, repeated dilatation will be found necessary, either with or without an anæsthetic, before the case is convalescent.

As in any other rectal condition, if the progress of the case is not satisfactory, the surgeon should assure himself that the recovery is not retarded by uncompleted work upon the sexual system. For while it is true that all forms of rectal irritation can interfere with the recovery of sexual disturbances, it is just as true that sexual pathology is capable of retarding recovery in rectal diseases. The surgeon should always bear in mind this mutual interdependence of the lower openings of the body, remembering that the work required at his hands is orificial, and not simply rectal. Of course, aid may be obtained by specific medication, but questions of materia medica are purposely omitted from this work, in which it is intended to give surgical methods only.

CHAPTER IV.

THE MALE SEXUAL SYSTEM.

In considering disorders of the male sexual system, let me again call attention to the fact that the entire reproductive apparatus, in either sex, derives its nervous supply from that general reservoir of sympathetic influence upon which depends the performance of all vital functions.

A waste of sexual power, as will readily be understood, must mean a waste of sympathetic nervous power in general, a veritable undermining of all the vital forces of the system. In view of its importance in this connection it is remarkable that greater attention has not been paid to the anatomy, physiology and hygiene of this part of the animal organism.

A male child is born, runs the course of childhood's diseases, passes to maturity with all its stirring changes, reaches the acme of strength in full-grown manhood, and then walks life's downward slope to its exit, and through all this career one important element of his training has been wholly neglected. He is taught to walk, to dress, to bathe, to eat, to behave with propriety, to solve and achieve, and to play well every other part in the game of life, but as regards the control of his sexual system he goes untutored, unadvised, unnoticed. Whatever knowledge he may obtain on this important subject comes by guesswork, by hearsay, or from far more questionable sources. The race seems still to be covered with its fig-leaf of shame, and parents and teachers seem possessed of too guilty consciences to permit them to make to those under their charge even the slightest reference to this subject.

The fact is just beginning to be appreciated that much of the disease and weakness, mental, moral and physical, of the male sex may be entirely prevented by giving proper attention to the hygiene of the sexual system.

I believe, after sufficient attention is given to the matter, that no one can fail to be convinced that all the true manhood of the race, all the strength, courage, valor, perseverance and virtue that the term implies, finds its chief representatives in those fortunate beings, who, having escaped undue sexual irritation, have never succumbed to the still poison of its unresisted temptations. On the other hand, does not all the unmanliness of mankind, all the weakness, effeminacy and enervating sensuality which that term implies, have its origin in abuses of the sexual function? Wherever you find a man of strength of will, of honesty of purpose, one who is controlled by right motives and possessed of a vigor that knows no defeat, you will find one whose sexual system is under his control, and whose body is his servant and not his master. Such a man's course through life is steady and unswerving, and marked by that success which is the nearest approach to the ideal life.

In strong contrast to this, if you consider those who have made life-failures, those who are wanting in all the virtues enumerated, you may be assured that they have been weakened by a physically abused sexuality. Is it, then, not time for men to awaken to a keener appreciation of this fact, and by proper surgical methods, when needed, to eradicate all possibility of such a perversion of life forces, and present a purer page for future generations?

I cannot leave this important topic without entering a protest against an idea that prevails with most men, and, alas! with too many physicians, viz: that after maturity periodical discharges of semen are essential to good health. No more pernicious falsity was ever woven into the network of human beliefs. If the liver falters in its work, pathological lesions will follow. If the kidneys suspend their action, general harm invariably results. But who would be so simple as to claim that the general health of an individual could not be maintained unless at stated intervals the lachrymal glands suffused the eyes with tears. Seminal losses are, like tears, a product of emotion which it is unbecoming for anyone of dignified manhood to exhibit. Animals, with nothing but their instinct to guide them, voluntarily refrain from sexual indulgence, except for the legitimate purpose of the propagation of their species.

Is it not a cause of great regret that man degrades himself to a lower level than the beasts, by degenerating into a condition of sensuality of which a beast would never be guilty? Sensuality feeds and grows on its own indulgence, until in the end it fails to procure even the poor satisfaction it seems at first to promise. It is only when sexual power remains evenly distributed throughout the system, that true manhood, with all its possibilities of strength and power, is ever attained. When the race will generally accept this doctrine, there will be some hope of greater immunity than it now enjoys from many of its loathsome diseases and its pitiable moral and physical deformities.

In the prevention of sexual waste, the control of mental forces is fully as important as the repair of physical deformity. A lustful thought or suggestion, whether it enters the individual by the sense of sight, or smell, or touch, or whether it springs spontaneously from his spiritual nature, can stimulate sexual activity and exhaust sympathetic nervous force as surely and effectually as can be done by physical irritation. In the present chapter, however, attention will be given to the physical forms of irritation.

The sympathetic nerve has what may be called brains, but the brains seem to be very limited in their capacity. They lack wholly the power of discrimination, and are aroused to action by pain as well as pleasure. A throat will swallow automatically if it is distended by a bolus of food; it manifests the same inclination if the space it incloses be filled by its own membrane in a swollen state, which, if it were capable of thought, it would know to be utterly useless to try to swallow. The stomach manifests the same tendency to turn itself inside out when loaded with unwholesome contents, and, when empty, responding merely to reflex irritation. The lower extremity of the alimentary canal is just as destitute of power of discrimination; the presence of a large stool will excite tenesmus until the bowel is evacuated, but that same bowel will be just as persistent in its straining in a vain effort to expel its own membrane in cases of dysentery. The bladder, if it be in an irritable condition, is just as much inclined to make efforts at expulsion, when there is nothing in it, as it is when it has good reason for its action on account of distension with urine. Masturbation will induce erection, but so will cutting off and sewing up the foreskin, even under an anæsthetic. The reflex connection between the rectum and the sexual system is very close, and many times, in sensitive subjects, while operating on the rectum, under an anæsthetic, have I seen the work produce an erection of the penis and start motions of copulation. Twice have I seen such excitement pass on to completion of the act in seminal loss. Almost invariably, if the tissues about the anus be stitched, will the presence of the stitches excite such spasmodic contraction of the sphincter vesicæ as to necessitate, for a few times at least, the use of the catheter. It is very common for a man to experience an erection in the early morning, although his sleep may have been sweet and his mind pure, simply because the bladder is full of urine. A single papilla, pocket or hemorrhoid underneath the prostate gland is capable of keeping a male sexual system constantly excited.

I enumerate these facts in this connection in order to indicate what slight forms of physical irritation, by inducing a congestion of the sexual organs, can stir up sexual activities identical with those that spring from true conjugal love, or from its perversion, in the form of sentiments of lust. As these stimulations are perfectly painless, they attract the attention of the individual and are easily mistaken by him for the spontaneous impulses of nature. Many a man yields to the silent pleading of his sexual system for indulgence, when the request is not the emanation of a God-like impulse implanted in his nature, but simply the delirious ravings of a bit of morbidly disturbed sexual apparatus. So close is the union between soul and body that they sustain a mutual action and reaction upon each other, and any form of irritation that can erect a penis is capable also of arousing the lustful tendencies of its possessor, to a greater or less degree debasing his whole nature.

Let me more clearly define what I mean by sexual waste. The meaning which I give to the term is a broad one, including everything that wastes sexual nervous supply. This need not necessarily involve a seminal loss; it may be nothing more than a clonic spasm of muscular fibers, in any part of the sexual apparatus. Perhaps the mucous membrane opposite the os vesicæ is a little irritated, and the sphincter vesicæ is constantly exercising an undue contraction; perhaps, for a like reason, the circular fibers that guard the ejaculatory ducts at their opening in the prostatic inch are spasmodically contracted; possibly the prostatic ducts in the same locality are unduly contracted at their openings. In these places, as elsewhere in the body, long-continued spasmodic muscular contraction, from whatsoever cause, is a waste of nerve force. Sooner or later, by its steady drain upon the general sympathetic nerve, it will seriously affect the tonicity of the capillary circulation, interfering with the nutrition, repair and resisting power of the entire body.

Man's sexual system may have escaped early abuse; the sexual organs may present an apparently healthy state, and yet, as a result of excoriations caused by a too acrid or too alkaline urine, or as the result of an unobtrusive catarrhal congestion, these parts may be the cause of a waste of nervous force, owing to undue muscular contractions in the deep portions of the urethra.

In orificial surgery, then, attention is not confined to the criminal classes, to masturbators and to patients suffering from gonorrhœa and gleet, and those suffering from these conditions are not the only ones whose sexual powers are wasted, and whose bodily health can be bettered by orificial methods.

In coming now directly to the discussion of the physical causes of sexual waste, let us consider what can be done by surgical methods in the way both of prevention and cure.

Presuming all abnormal conditions of the rectum to have been corrected, so as to relieve the sexual system from reflex irritation arising from this source, let us examine the penis itself, beginning at its free extremity. A perfectly formed foreskin, in a relaxed state of the organ, extends no farther than the point of the glans penis; it is free from all adhesions to the glans and its corona; it exercises no degree of constriction upon the glans itself, and when retracted shows no tendency whatever to pinch the penis.

The deviations from this standard are in two directions, namely: of length and of constriction. A foreskin that closes over the glans penis, protruding more or less beyond its extremity, is redundant, no matter how free from constriction it may be. Such a foreskin should always be amputated, and the circumcision, in such cases, is invariably attended with beneficial results. The accompanying illustration (Fig. 24) shows the common appearance of such cases.

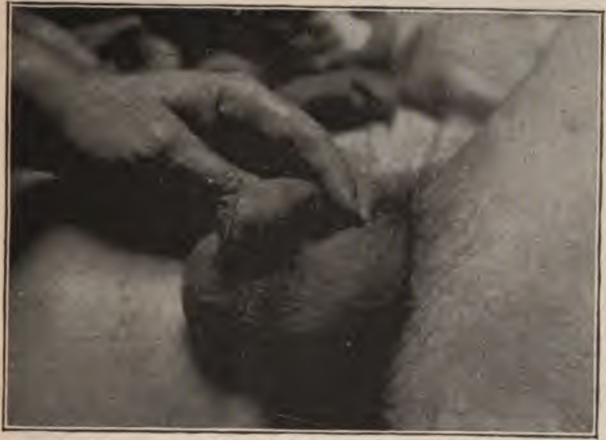


FIG. 24.

The test for constriction of the foreskin is the behavior of the part upon retraction. The slightest tendency of the foreskin to pinch the glans in any part of its course is ample justification for separating the tissues along the dorsum. Such a case does not need circumcision, but simply a dorsal slit, to overcome the abnormal contraction.

In operating, the dorsal cut should extend far enough completely to overcome the difficulty. Sometimes this will be half way to the corona; at other times it will be to a point beyond the corona. There is no danger of being too generous in making the slit. The appearance of the parts is improved by rounding off the corners at the beginning of the incision.

When circumcision is necessary, I believe that the ordinary methods of operating may be much improved upon. Keeping in mind the condition of the foreskin as it should be when perfectly formed, this result can be secured in the following manner: After the patient is anæsthetized, seize the foreskin with a pair of T-forceps at the junction of the mucous membrane and skin. This is an important point to observe. If it be neglected the operator is in danger of removing an unnecessarily large amount of integument. The bulging of the penis just below the attachment of the forceps accurately defines the location of the glans penis. A pair of scissors is now applied to the foreskin at a point directly opposite the apex of the

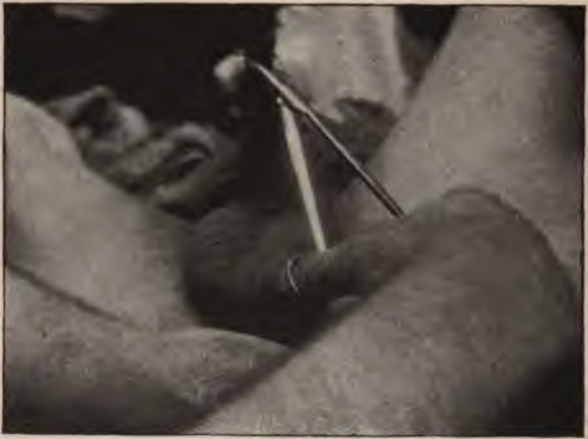


FIG. 25.

Fig. 25 illustrates the seizure of the foreskin by the T-forceps, and the first position of the scissors in amputating the foreskin.

glans, and the tissues are severed in a straight line, half way across the foreskin (Fig. 25). The handles of the scissors are now to be raised so as to remove an elongated piece of foreskin from the dorsum, the point of the strip extending as far up the penis as the edge of the corona, which can be distinctly outlined through the integument. This procedure, aside from amputating the foreskin at the point of the glans, also removes a V-shaped piece along the dorsum (Fig. 26). The object of this is to insure proper freedom for the foreskin, and to prevent, on healing, undue contraction at the point of amputation. The skin and mucous membrane are now to be carefully stitched together, care being taken not to twist the tissues in the process. From four to six or eight sutures will be required to hold the parts in nice coäptation (Fig. 27).

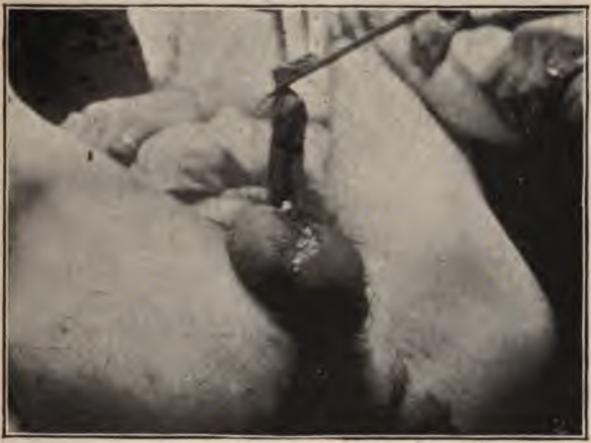


FIG. 26.

Fig. 26 illustrates the second position of the scissors in the operation.

If the penis could be relied upon to remain in a relaxed state for forty-eight hours, the operation could now be regarded as complete; but, unfortunately, the presence of the stitches is liable to induce irritation which will cause erection, and also to stimulate the skin to abnormally shorten itself, by its own contractility. In every case the portion of the foreskin left intact would be retracted beyond the glans, and the healing of the parts in this position would result in the formation of an ungainly ring of thickened tissue retained in permanent retraction beyond the glans.

In the estimation of many operators this condition is desirable, but, for my part, I see no reason for inducing such a deformity, and it can be easily prevented in the following manner: After the mucous membrane and skin have been carefully united, the remaining foreskin on either side is to be transfixed and held in coäptation by from one to three sutures, according to the length of the glans. The lower opening of the foreskin should be sufficiently closed by these sutures to make retraction of the foreskin impossible (Fig. 28). These last sutures will retain the foreskin in its proper position and secure a shapely appearance of the stump. All sutures can be removed in forty-eight hours, as the parts heal very rapidly and all danger of deformity will by that time have passed away.

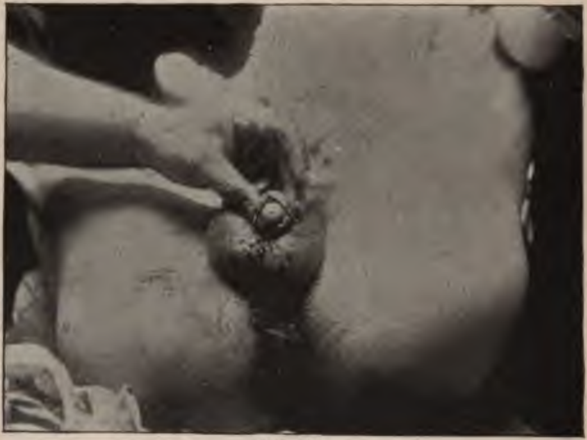


FIG. 27.

Fig. 27 illustrates the proper appearance of the penis after the foreskin has been amputated and the skin and mucous membrane united by sutures.

In circumcising young children it is important to break up all adhesions of the foreskin to the glans penis before practicing circumcision, so as to avoid all danger of wounding the point of the glans in the process of amputating the foreskin. As soon as the mucous membrane and skin have been nicely coäpted, and before the retaining stitches are inserted, the frænum should be carefully examined, and if, upon complete retraction, the frænum be so short as to depress in the least the point of the glans, it should be severed sufficiently to remove this tendency. Great care should be observed in doing this not to wound the artery of the corpus spongiosum, which lies immediately beneath it, or to puncture the urethra, which is only a trifle deeper.

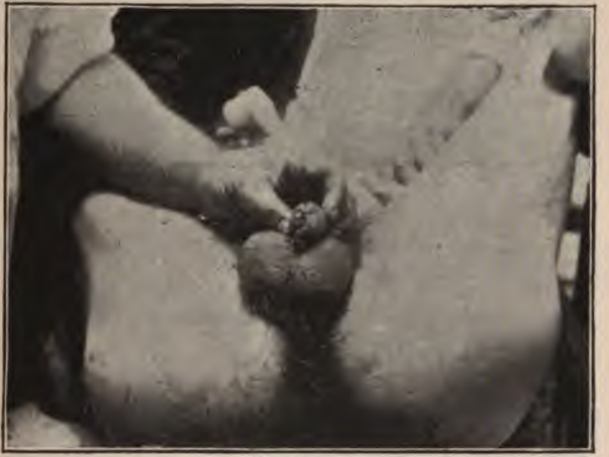


FIG. 28.

Fig. 28 illustrates the appearance of the penis after the completion of the operation.

Before the foreskin is closed over the glans penis, the meatus urinarius should also be examined, and if found to present a constricted condition, should be enlarged with a meatus knife to the full caliber of the urethra. The introduction of bulbous sounds will accurately define this point. The incision of the meatus should always be made at its lower edge. Unless the lips of this wound are kept apart by the daily use of graded sounds passed for an inch into the urethra,

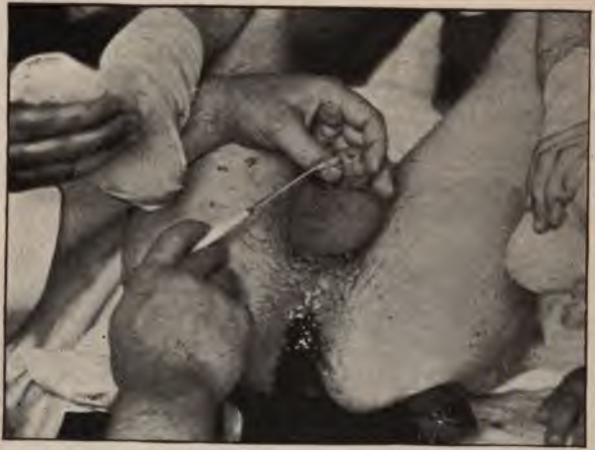


FIG. 29.

Fig. 29 showing small meatus and meatus knife ready for introduction, edge of blade downward.

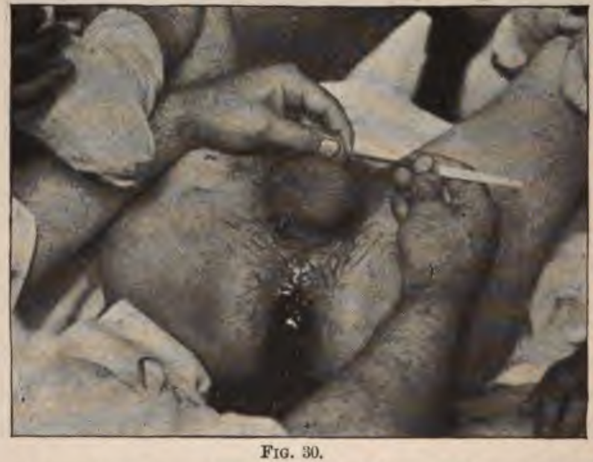


FIG. 30.

Fig. 30 showing manner of making incision. This may also be done by transfixing the lower edge of the meatus with a curved sharp-pointed bistoury and carrying the knife through.

the trouble will be reproduced and require a second severing (Figs. 29, 30, 31).

The subject of stricture of the urethra is already so thoroughly discussed in standard medical literature that I shall not in the present work give attention to this important class of disorders of the male sexual system. Should a stricture be encountered in treating any chronic trouble upon orificial principles, it is to receive radical treatment for its cure.

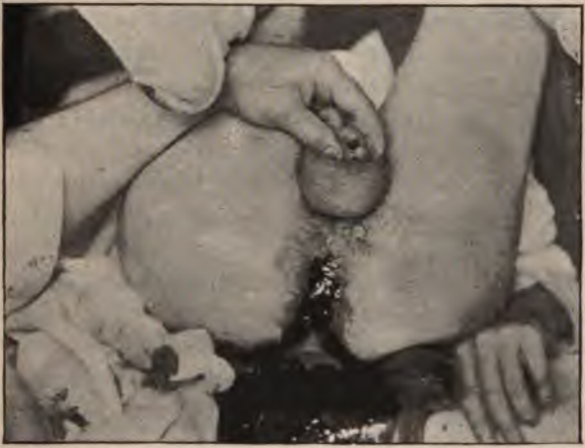


FIG. 31.

Fig. 31 illustrates appearance of meatus after incision.

THE PROSTATIC INCH OF THE URETHRA.

The next point of interest to the orificial surgeon is the prostatic inch of the urethra. The nerves which go to the testicle in the male correspond to those which supply the ovaries in the female. The nerves which supply the glans penis in the male correspond to those which are distributed to the clitoris in the female; and the pencil of nerves which is distributed to the prostatic gland in the male, is the same pencil which in the female is distributed to the uterus. If uterine trouble, through reflex irritation, can cause derangements of the stomach, heart, throat and head, and, in fact, almost any portion of the female organism, why may not prostatic diseases produce similar reflex disturbances in man? If a woman complains of a pain in the top of the head, the physician immediately suspects some disorder of the uterus. But if a man makes similar complaint, how many physicians would think of prostatic irritation as a cause?

There are rudiments of masculine structure in woman. The crystallization of this quality is presented in her diminutive clitoris. There is a trace of womanly nature in man. The physical expression of this quality is the uterus masculinus, lying beneath the veru-montanum in the prostatic inch of the urethra. As the cervix uteri, guarded at either extremity by an os, is the key to almost the entire list of uterine disorders, so is that narrow inch in the urethra where it passes through the prostate gland, the very center of centers of the male sexual system. At one end of this inch is the opening into the bladder; at the other end of this inch is the opening into the urethra. Along the floor of this inch is the veru-montanum and its underlying uterus masculinus. In the middle of the groove on either side of the veru-montanum are the openings of the ejaculatory ducts leading backward in one direction to terminate in the vesiculæ seminales, the receptacles for the semen lying along the under surface of the bladder on either side, and by the other branch passing on into the vas deferens, which by its ultimate subdivisions forms the epididymis and body of the testes. Scattered along the sides and roof of this same inch open the dozen or fifteen ducts, the ramifications of which, together with the parenchyma in which they are laid, constitute the prostate itself.

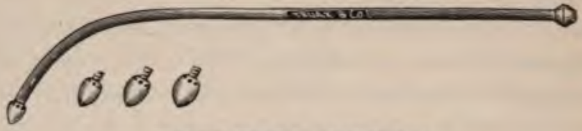
So sure as urethritis can be induced by a small amount of gonorrhœal poison deposited at the meatus; so sure as cystitis can result from long-continued irritation at the os vesicæ; so sure as too frequent micturation in the female can be occasioned by a urethral caruncle; so sure as disorders of the colon and any part of the intestinal tract can be induced by irritation of the last inch of the rectum; in fact, just so sure as irritation of any organ starts at its mouth, even so surely does the condition of the prostate, the testicles, the bladder and the kidneys depend upon the condition of the various mouths which form the outlets of these organs, and which are centered in the prostatic inch of the urethra.

This spot, then, is the key to the sexual situation in the male, and can be treated to the extreme of profit or danger, not only to the narrow confines of the inch itself, but to the entire organism. It is, therefore, not to be recklessly and ruthlessly invaded, nor is it to be left unprovided with means of relief when congestion has begun to institute pathological changes. The part is so deep-seated that measures for reaching it are comparatively few and simple. They consist in dilatation in the use of electricity, and in the application of dry and moist heat and cold, the subject of medication not being here considered.

In dilating the urethra for the first time, it is desirable that the patient should be placed under an anæsthetic and that the work should be done thoroughly. It is a good plan to follow the rule that you will find laid down later on for dilating the uterine cavity, viz: by the passage of sounds, until a uniform resistance is felt throughout the entire length of the urethra. With some patients this will be a No. 14; with others it may be a No. 24; on the average it will be either Nos. 18 or 20, English scale. It is a good plan thoroughly to cleanse the urethra before the sounds are passed, and to exercise care that the sounds, also, are thoroughly cleansed, and well lubricated with either soap or olive oil. The advantage of soap as a lubricant for this purpose is that it frees whatever mucus may be in the urethra from its walls, and permits it to cling to the surface of the sound.

After the graded sounds have been passed until the urethra is properly dilated, it is well again to pass a smaller size, so as to ascertain if there be mucus still remaining in the urethra. If this is found to be the case, then a smaller sized sound, ranging anywhere from No. 10 to No. 14, should be repeatedly passed until upon withdrawal no mucus clings to the sound. The larger sizes of the sounds would not remove the mucus from the urethra, as they would fit the urethra so closely as to preclude the possibility of the mucus adhering to its surface.

After the dilatation and the removal of the mucus has been effected, the urethra should be again carefully douched, either with plain or medicated water, at the discretion of the surgeon.



LINDERSCHMIDT INSTRUMENT.

An instrument has lately been devised for this purpose by Mr. Linderschmidt, of Milwaukee, which supplies a long-felt want in the profession, as it douches all débris outward, instead of back into the bladder. Dr. Linn, of Rochester, has inserted a similar tip in one end of a flexible catheter and attached a bulb syringe to the other end, making a very ingenious instrument for the same purpose.

If the condition of the sexual system is an exceedingly sluggish one, it is a good plan to combine the alternate action of heat and cold with dilatation. This may be done by heating the first few sounds that are passed, and passing the last ones cold. The plan of applying dry heat directly to the prostatic inch by means of a double douche tube invented by Dr. Palmer, of Minneapolis, is a very good one for instituting nutritive changes in obstinate cases of either hemorrhagic tendency, or enlargement of the prostate. By this instrument dry cold may be used as well as heat, so that the two can be alternated, thus compelling a change in the capillary circulation of the part. Moist heat and cold may be used at the discretion of the surgeon for after-treatment, by means of the urethral douche just described.

As to the frequency with which to repeat the use of sounds, there is but one principle with which I am familiar that will serve as a safe guide. It is a broad principle and applies not only to the male urethra, but to the female urethra, the uterus, the vagina, the rectum, and, on a still broader basis, to all measures for arousing reactive power in either a single organ or in the entire body. The principle consists in using orificial methods when indicated, by dilatation and pruning, at longer or shorter intervals, allowing a reasonable degree of time for the measures to produce their desired effect, until signs of reaction appear. In some cases this will be immediately. In others it will be found that the inertia is more profound, and more vigorous measures will be necessary. In others, still, the system will be so dormant that some months will elapse before reaction occurs. And yet in others, and, I am happy to state, in by far the smaller number, the condition of lethargy will be so profound that there will be no signs of reaction whatever, even in response to the most vigorous measures.

In a word, in some few cases orificial surgery will be as powerless to effect the purpose as any other earthly measure is to raise the dead. The sleeping, however, who have taken on the image of death, but are not yet lost in it, are more numerous, both in organs and individuals, than any one has yet dreamed, and the host of sluggish conditions that can be changed into health-giving activities is simply beyond belief or description.

This rule for the repetition of measures is so broad and general that it may not be satisfactory to some physicians who would like more definite instruction as to the exact dates and times when the use of sounds should be repeated. But to such physicians I can only say that surgery is an art as well as a science, and the question of when to do, and when not to do, is an artistic one, and can only be answered as a result of intelligent experience. The rule of passing sounds at intervals of a few days until some faint signs of reaction appear, is as definite as I am capable of expressing the matter.

There is one point in this connection which may help to decide as to when reaction has begun, and that is the condition of the meatus. If the prostatic inch is congested and irritable, the meatus will be more or less swollen and pouting. If the prostatic inch be still torpid and sleepy, the pale, flabby condition of the meatus will indicate as much. In other words, the meatus and the mucous membrane, which can be disclosed by separating its lips, are more or less reliable indices of prostatic conditions.

After the first operation the passing of sounds will be practiced without an anæsthetic. When this measure is found to be quite painful, and the patient is left in some distress after the withdrawal of the sound, if the point of the penis be immediately dipped in a cup of water as warm as can be comfortably borne, the part will be immediately soothed and no inflammation will follow.

The care with which the sound is passed cannot be too great. The patient should be in a recumbent posture. No force is required, and none should be used. The course of the urethra should be carefully followed and the penis kept well stretched upon the sound. The mistake usually made in passing this instrument is in depressing the handle before the sound is sufficiently introduced. In a relaxed and debilitated state of the penis it is not always a simple matter to follow the course of the urethra directly to the membranous portion, without careful manipulation and great patience. The mere pressure of the sound itself, with delicate handling, will usually stimulate urethral contraction to a sufficient extent to straighten the tube and guide the instrument. Always remember to straighten the penis as thoroughly as possible along the sound.

In cases in which the object is to allay irritability, the too frequent use of sounds will invariably increase the trouble, and many an orchitis, cystitis, prostatitis, urethritis and nephritis has been occasioned by such overdoing.

In such cases, therefore, you should do thorough work at a single séance, and then patiently await results. If urethritis is threatened, the dipping of the penis three or four times a day in warm water, and the use of medicated injections at the same time, will very speedily allay all irritation.

Where, however, the case is sluggish, and the entrance of the sound causes no distress, and very many times not even the sensation of passing water, it is well to pass sounds as often as twice a week, using the sound also as an electrode for a galvanic current until signs of awakening to activity are displayed by the organ.

You need not be surprised, in treating cases of spermatorrhœa, to find them considerably aggravated at first. This is a symptom of increased activity. Suspend all further interference until the irritation occasioned has thoroughly subsided. In very debilitated subjects the passage of sounds will sometimes produce enuresis. These cases are very exceptional and need not occasion alarm. A little galvanism, a few stimulations by hot injections and the administration of internal remedies will very speedily restore the organ, not only to its previous vigor, but to a still further degree of health than it before enjoyed.

No powerful irritants or astringents should be thrown into the urethra, as they are liable to occasion stricture.

The use of electricity in sexual troubles is already sufficiently discussed in standard works and will hence be omitted here.

Although the methods which I have recommended for the relief of prostatic irritation are quite simple, the results which may be accomplished by them are far-reaching, and sometimes marvellous in their nature. It will be found that the few suggestions which have been made, together with those to be found elsewhere in the present work, will solve many of the problems connected with the treatment of diseases of these parts. Sexual irritability in the young will be allayed. The lost powers of those advanced in life will, in a great majority of cases, be restored. Atrophied testicles will be developed; hypertrophied ones will be reduced, and bladder and kidney troubles, to say nothing of the reflexes of other organs in the body, will be greatly relieved. Enlargements of the prostate, for which previously there seemed to be no remedy, can now be very satisfactorily treated, and it will be a great source of satisfaction to the surgeon to watch the effect of the re-established capillary circulation in these parts.

In addition to the urethral treatment for restoring tone to the sexual system, and for the cure of its disorders, great assistance can be obtained by the use of the various forms of electricity applied locally, alternate heat and cold, bathing of the parts, and also by massage. This last measure I hesitate very much to recommend, as in the hands of unskilled manipulators, especially when unaccompanied by a proper moral education of the patient, the measure might easily be productive of harm instead of good.

For the local application of magnetic and electrical force, where it is inconvenient for the patient to be frequently treated by his physician, two appliances have been invented which are of considerable value in aiding in the restoration of lost sexual power. A scrotal supporter inlaid with small square plates of steel charged with a magnet has been worn with much benefit by many.

A genuine galvanic battery is made to act upon these parts by means of an electric belt.

These appliances are of great advantage to patients who are unable to apply with any degree of regularity or frequency to their physicians for proper treatment.

Man is a victim of habits, both mental and physical. When he has suffered for many years from an over-stimulated sexual system as a result of physical irritation, the mental habits which have necessarily followed may re-act upon the organs, keeping up an undue excitation, even after the physical forms of irritation which first induced the habit have passed away. The patient should be warned upon this point, and instructed when his sexual power is restored and his organs are once more in a vigorous condition, that it is to his highest interest to preserve intact his sexual powers and not again be prodigally extravagant of them.

CHAPTER V.

THE FEMALE SEXUAL SYSTEM.

In the female sexual system the parts calling for inspection by the orificial surgeon are the clitoris, the meatus urinarius, the vulva, the vagina, the external os uteri, the cervical canal, the internal os uteri and the uterine cavity.

THE CLITORIS.

At one time in the history of medicine in France the clitoris as a source of irritation to the female sexual system was thoroughly appreciated. Hence, this organ has not always been neglected as it has been of recent years. But the treatment to which it was formerly subjected was altogether too radical, for it involved not merely the treatment of its hood, but the amputation of the organ itself. As this severe measure was in several instances productive of insanity, and in other cases transformed the nature of the patient by destroying all sexual instinct, the subject became a matter of legislative action and the treatment was forbidden by law. If the doctors had attacked male children who presented an irritation of the foreskin, in the same logical manner, I suppose, they would have amputated the penis.

It is not necessary, however, to employ such severe measures in order to allay irritation occasioned by a troublesome clitoris. As a penis has a foreskin, so the clitoris has a hood, and as a foreskin becomes adherent to the glans prepuce, confining smegma in more or less abundance, the clitoris suffers a like inconvenience from an adhesion of its hood, and smegma will many times be found confined by the adhesions.

The same conditions which prevail with the prepuce, as to abnormalities of length and tension, likewise prevail with the hood of the clitoris. An unduly long and redundant hood should be amputated; an unduly tight one should be slit open along the dorsum. In fact, the treatment of the hood of the clitoris should be based upon the same principles which have been laid down for the treatment of the foreskin. It is the most sensitive spot in the female organism, as the point of the glans penis is in the male, it being supplied by the corresponding nerves in the opposite sex.

It is quite important when any cutting is done to the hood of the clitoris that the lips of the wound should be parted daily, so as to prevent the formation of "tents," or cicatricial bands, which would afterward cause undue constriction of the parts.

THE URETHRA.

The female urethra very frequently requires the attention of the surgeon. Sometimes it is too narrow, and needs dilating. Sometimes it is surrounded by a ragged fringe of redundant mucous membrane, or presents, at its lower part, a caruncle, which requires merely clipping off at its base. Occasionally the whole orifice is smooth, but considerably hypertrophied. If such a meatus be carefully everted, slitting it back on its under surface for a short distance, if necessary to effect this, it will be found that the mucous glands at that point have been so enlarged and elongated as to make urethral pockets, similar to one form of rectal pockets. When this hypertrophied condition of the glands exists, they should be cut out precisely in the manner in which rectal pockets are removed. They are always situated directly at the meatus, and are not difficult to discover, a small blunt hook serving as a very ready detector. Mucous glands in this situation are, of course, structures belonging to the anatomy of the part, but when they become distended and elongated sufficiently to engage the point of a blunt hook, they have passed beyond the sphere of anatomy, they have assumed a pathological condition, and should be treated accordingly. They are not common.

In general terms undue contraction of the meatus must be overcome, hypertrophy must be reduced by removal of the redundant tissue, and roughened and ragged margins must be trimmed. In removing hypertrophied tissue it is many times necessary to remove a rim of tissue. Perform upon the urethra an operation similar to that which has been described as "the American operation" in the chapter upon the rectum. No harm results from slitting the urethra for an inch or more along its under surface when such a proceeding is needed for thorough inspection and work. Of course it is to be stitched up again.

THE HYMEN.

The hymen, especially in unmarried women, is a very frequent source of irritation, and in such cases excision is called for. By the aid of the T-forceps and curved scissors this is very easily accomplished. In the sulcus on either side of the meatus urinarius, the termination of the internal pubic artery is quite superficial, and in removing a hymen care should be taken not to wound this artery by cutting a trifle too deep. Such a wound would do no permanent damage, but simply necessitate the use of torsion.

The remnants of a hymen, which are sometimes found in women who have borne children, and called carunculæ myrtiformæ, should always be removed, as they are liable to occasion more or less irritation of the vulva. Remember that the vulva is supplied by a sphincter muscle, and that irritation about the attachment of the hymen very often produces a strictured condition of the orifice. It is just as important to secure a proper degree of dilatation of the vulva as of any other of the lower openings of the body. For this purpose the rectal bivalve speculum will answer as a satisfactory dilator.

THE VAGINA.

There are two conditions of the vagina which will often require attention—the too contracted one of vaginismus, and the too relaxed condition, commonly described as a "baggy" vagina. In the one there is an excessive irritability; in the other there is a complete lack of tonicity.

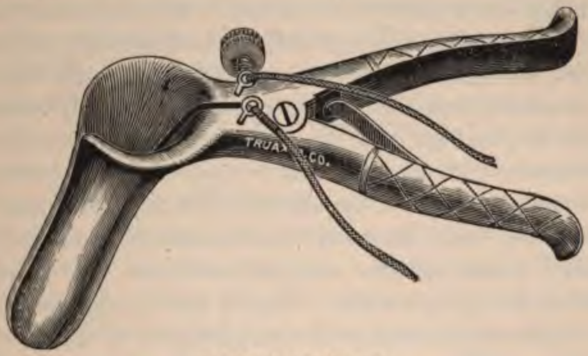
Vaginismus is very commonly reflected from some irritation of the parts about the vulva, or the uterus, or both. But sometimes the circular fibers of the vagina have been contracted so long as to have induced a shortening of the fibers, and to constitute an organic stricture. The common location for such strictures has been, in my experience, at the lower extremity of the cervix. A possible explanation for the location of the stricture at this particular point is that the discharges from a uterine catarrh irritate the vagina as soon as they escape from the uterus, and induce clonic spasm of the circular fibers. Wherever the stricture may be located, however—whether in some one part of the vagina, or throughout its entire length—it is to be thoroughly relaxed by dilatation. Sometimes the tissues will have assumed a fibrous character, so that relaxation to any extent is impossible at a single séance. In such cases repeated dilatations, under an anæsthetic, must be employed until the nature of the parts is thoroughly changed from a hardened, contracted canal, to a softened and dilatable one.

For the baggy condition of the vagina I also recommend dilatation. As the repeated passing of steel sounds will not only allay irritability in the urethra, but also strengthen and restore the tonicity of a dilated, flabby and over-distended one; as it will not only relieve stenosis in the uterus, but also reduce subinvolution; as it is good not only for a strictured condition but also for a patulous one in other canals, so it will not only cure vaginismus, but, if persistently employed, will also restore to a proper tone a relaxed condition of the vagina.

The introduction of very large pessaries and supporters will sometimes effect the purpose, but it can be better accomplished, perhaps, by the occasional use of the rectal bivalve speculum in the vagina. Another method is to use an elongated rubber bag, of suitable size, with a rubber tube attached to one end, through which, by means of a syringe, can be injected the desired amount of air. Or, what is still better, inject a quantity of hot water, which can be confined for a brief time and immediately followed by an injection of cold water, thus securing the tonic effect not only of dilatation, but also of the alternation of heat and cold.

In procidentia, as well as in cystocele and rectocele, plastic operations on the vagina, as described in almost any work on gynecology, will be called for.

There is another measure which it is my intention to use, and which seems to me sufficiently promising to deserve mention here. I cannot, however, yet speak from experience with it, but the suggestion can do no harm. I have had my rectal bivalve constructed so that the blades are insulated by a thin plate of rubber. The electrodes of a Faradic battery can be connected to the blades. The following is a cut of the instrument.



ELECTRIC SPECULUM.

By the use of this in a baggy vagina the operator will be able to secure not only the tonic effects of dilatation, but also the stimulating action of the Faradic current, which can safely be carried to the point of inducing spasmodic action of the muscular coats of the vagina. Persistent treatment of this kind, it seems to me, must result in strengthening the vaginal walls and restoring them to a partial degree of their former vigor. I would advise those who have not purchased a bivalve speculum to procure one made in this manner, as it answers all the purposes of an ordinary bivalve, and at the same time can be used as an electrode either in the rectum or vagina, having the advantage over other electrodes of securing at the same time any amount of dilatation desirable.

THE UTERUS.

We come now to the consideration of the uterus. Omitting all descriptions and discussions so abundantly furnished in gynecological writings, it is the province of this work to consider it merely with reference to the application of the principles of the orificial philosophy.

There is one point, however, with reference to the anatomy of the organ to which it may be well to call attention. If, for two weeks before labor, daily examinations of a gravid uterus be made, it will be found that nature makes a finer dissection of the two distinct parts of the uterus — the neck and the body — than it is possible to duplicate in the dissecting room. At eight and one-half months the gravid uterus still has something of a neck, although it has become perceptibly shortened. It is soft and flabby, and the external os is so patulous that many times the index finger can be inserted and made to follow the entire length of the cervix. At the upper extremity of the cervical canal, however, the internal os can be felt to be completely closed and its margins hard and unyielding, like the rest of the uterine walls. Day by day this remnant of the cervix fades away, until with the setting in of the first labor-pains it has entirely disappeared, being felt then as a large ring of soft, pulpy tissue beneath which the index finger can be passed and made to describe a more or less enlarged circle on the under surface of the body of the uterus. The internal os has just begun to open. If the index finger be now forced through the internal os, it is easy to satisfy oneself that the internal os is formed by circular fibers of the body of the uterus, and that the external os is nothing but a part of the cervix, which is quite distinct from the body, and, although it is made up of circular and longitudinal muscular fibers similar to those which constitute the body of the uterus, still, in reality the body and neck of the uterus are practically two different organs, united at their extremities.

The external os is the entrance to the cervical canal; the internal os is the gateway to the uterine cavity. As the point of the penis is to a greater or less extent a guide to the condition of the urethra beyond, so the external os is an index to the condition of the cervical canal. What for many years was ignorantly spoken of as ulceration of the cervix, is now known to be simply the swollen, congested and extruded mucous membrane of the canal, thrown down and out of the os by the elongation occasioned by congestion. By this it is not meant that genuine ulceration of the cervix does not exist, but, like true ulceration of the rectum, it is of rare occurrence, and usually specific in character.

The condition of the external os, as affecting the health of the individual, is of considerable importance. This is indicated in the early weeks of gestation. The nausea and vomiting so frequently experienced at this time can almost invariably be relieved by forcible dilatation of the external os uteri. This procedure will not induce miscarriage, but rather have a tendency to prevent it, and it is now generally regarded not only a safe, but a justifiable measure in obstinate cases.

Like other orifices, the cervical canal presents two conditions requiring surgical attention. Sometimes it is too contracted; at other times it is too patulous. In either state it is liable to be accompanied by cystic degeneration of the mucous glands about the neighborhood of the os. These, of course, should be freely incised and the contents of the sacs evacuated. Dilatation will usually suffice to correct both of these conditions. Occasionally, however, it is well to slit the external os where it is badly contracted, or when the cervix is indurated from a multiplication of the fibrous elements. Again, when it is too patulous, a V-shaped piece may be removed from either side of the cervix, the angle of the V being above, of course. After removing the section, stitch the raw surfaces neatly together. In a word, the external os must be in proper condition, neither too much contracted, nor gaping. If dilatation does not serve to correct this condition, surgical measures must be adopted.

The use of the galvanic current and the application of astringent remedies will be of value in conditions of cervical catarrh and its accompanying hypertrophy. The old practice of cauterizing the canal is productive of much mischief, and if not properly treated subsequently, it is liable to produce atresion of the cervix. If physicians still persist in employing this severe measure, however, let me suggest that instead of cauterizing the entire surface of the mucous membrane, as is the common practice, they confine their cautery to three or four longitudinal streaks along its surface, after the old method of treating prolapsus of the rectum. This will produce longitudinal sloughs and cicatrization which will shorten the mucous membrane, draw in the everted mass, and at the same time not completely destroy the anatomical structures of the part. I do not wish, however, to be understood as recommending the measure.

The part of the uterus surrounding the internal os, where the cervix joins the body, marks the location of many important structures. It is at this point that the vaginal mucous membrane is reflected from the outer surface of the cervix and arches downward to become the wall of the vagina. It is opposite this point that, upon the posterior surface of the uterus, the peritoneum is reflected from the posterior surface of the body of the uterus and forms Douglas' cul-de-sac. It is between these diverging membranes—the mucous membrane of the vagina below and the reflection of the peritoneum above—that the pelvic fascia is firmly attached on the outer side to the pelvic walls, and on the inner side to the uterus, forming its most fixed point. It is in the meshes of this dense fascia that the uterine arteries and veins take their course, and the lymphatics and nerves which supply the organ are their companions. It is at this point that uterine flexions take place. In weakened states of the organ it is bent forward, inducing ante-flexion, or sidewise, forming lateral flexion, or backward, constituting retro-flexion.

The internal os, then, where neck and body join, where ligaments hold it in more or less fixed position, where important blood-vessels, nerves and lymphatics find their entrance and exit, passing upward into the body and downward into the cervix, is a spot of great importance. Strength at this spot means normal position of the uterus and equable circulation. Weakness at this point, or irritation, spasm, or other abnormal condition, means congestion, inflammation, flexion and all the other maladies to which the uterus is subject. Here, too, will be found the most frequent causes of dysmenorrhœa and sterility. It is, therefore, the spot of chief interest in the treatment of diseases of women. How shall irritability of this part be allayed? How shall its tone be restored? How shall spasms and flexions be corrected? What methods shall be used in the treatment of this important part so as to secure a normal condition of the sexual structures of which it is the center?

Nature's way of renewing the health of woman is a process of dilatation. She accomplishes it by means of that wonderful physiological process to which all owe their existence, namely: child-bearing. Nature does her work thoroughly, and dilates the orifices of the uterus to their greatest capacity by means of the fœtal head. The general shock to the system is so great that, for a time, the mother seems much weaker than before, and for many months her reactive power is greatly diminished, a fact which should be borne in mind when operations upon a young mother are contemplated. But, slowly and by degrees her strength returns to a greatly increased degree. The healthiest women are produced where this process of child-bearing is accomplished about once in from two to five years, according to the reactive power of the individual. If it occurs at too frequent intervals, dilatation by nature's process does not give the mother sufficient time to regain her strength; her health is impaired, her system is exhausted, until the menopause or some change in her domestic relations furnishes her the needed boon of a more extended rest.

It seems to me that the more nearly we approach the processes of nature in our methods of cure, the more successful we will be. Thorough dilatation of the uterus being nature's own remedy for woman, why should we not imitate her processes where she fails to accomplish it for herself? Observing still more closely the lessons of nature in this matter, our processes of dilatation should be thorough, the instruments by which they are accomplished should be round and smooth, and the process should be repeated at long intervals.

Before introducing anything into a uterine cavity, the surgeon should always ascertain that it is not impregnated. To do this, after a tenaculum has been inserted in the cervical canal without the speculum, pass the handle of the tenaculum to an assistant, and while he makes considerable traction upon it, so as to draw the uterus as far down as it will readily come, the index finger of the left hand of the operator is to be passed into the rectum, while the index finger of the right hand is passed into the vagina in front of the uterus. In this manner the uterus and all its appendages will lie between the two index fingers, and the operator can decide not only as to whether the uterus is impregnated or not, but can also detect any false adhesions that may bind it, and can also decide

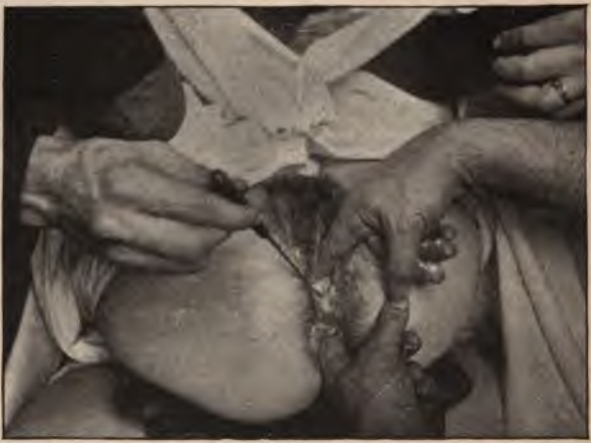


FIG. 32.

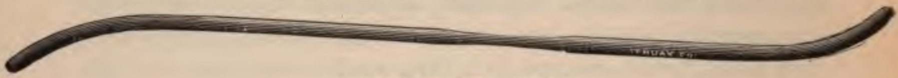
Fig. 32 showing method of bimanual examination of the uterus and its appendages.

whether or not the ovaries are in normal position and condition (Fig. 32).

Of course, in case of pregnancy the operator will at once observe that the uterus has taken on an unusually rounded appearance, presenting at the position of the internal os a distinct shoulder. In such cases, it goes without saying, that all operative interference is to be abandoned, the anæsthetic stopped, and the case postponed until the uterus has been relieved of its natural burden in its own natural way, and sufficient time has elapsed to permit the patient to have recovered her reactive power. This period is usually from six months to a year; after miscarriage a little sooner than after a childbirth.

When a uterine cavity is to be entered for the first time, after the patient is placed in position and the uterus exposed to view by a suitable speculum, a tenaculum, either single or double, is to be inserted into the cervical canal and sunk well into the tissues of the cervix so as to steady the uterus in a desirable position. The ordinary Sims' flexible sound is now to be inserted into the uterine cavity and careful note taken of the position of the uterus. Occasionally some difficulty will be experienced in entering the internal os. Remembering the point which has just been made as to the anatomical relations of the cervix and the body, it will readily be understood that in cases of spasmodic contraction of the internal os, the end of the sound can easily pass along the cervical canal and drop into the sulcus between the internal os and the upper end of the cervix, giving the operator the impression that the os was thoroughly stenosed. By feeling along the obstructing surface, which in reality is the under surface of the body of the uterus, with the point of the sound, especially in the center of the field, the os will usually be found without very much difficulty, and the uterine cavity successfully entered.

Now, using graded sounds, illustrated in the cut on next page, they are to be passed one by one in rapid succession until the uterus is dilated to its capacity. The rule which has guided me in this matter for some years, and which is applicable to any size and condition of the uterus, is to employ larger and larger sizes until there is no more resistance at the internal os than is felt throughout the length of the uterine cavity. This practically converts the uterus into a straight tube. If dilatation be carried beyond this point, laceration of the uterine tissues is liable to be induced. If it be stopped short of this point, the subsequent spasmodic closure of the internal os is liable to confine the discharges, which are sure to accumulate in the uterine cavity and induce some degree of inflammation.



DOUBLE GRADED SOUNDS.

It has long been known that it is dangerous practice to enter the uterine cavity with small probes of any kind, whether it be a flexible uterine sound or any of the various forms of uterine repositors, many women having suffered loss of life from this apparently harmless proceeding; but complete dilatation affords free escape for secretions, and is a safe procedure.

The surgeon should always take note of the texture of the uterus. If it be firm and more or less fibrous in its nature, considerable force can safely be used in the process of dilatation. In fact, it will be required in order to secure it. If the tissues, however, are soft and succulent, great care should be exercised to avoid forcible measures, as lacerations are then very liable to ensue. Occasionally the fundus of the uterus, especially in atrophied organs, is exceedingly thin, and if the sounds are not handled with extreme care, may be punctured, permitting the sounds to enter the peritoneal cavity. This would not necessarily be a fatal accident; at the same time, it is the part of wisdom to avoid it.

A set of sounds is not always well graded. In purchasing them they should be selected with this in view: The point of each should be very slightly tapering, so that the larger part of one sound is a little greater in circumference than the point of the next larger grade. The sounds are made double-tipped, so as to lessen their number, and it is a better plan still to have their central portion insulated by hard rubber coating, so that either extremity can be used as an electrode.

After dilatation has been practiced in this manner, a small wad of absorbent cotton is to be carefully wrapped about the probe-pointed extremity of the flexible sound, and the entire endometrium thoroughly swabbed out, especially at the lateral horns of the uterine cavity which give origin to the Fallopian tubes. As the mouth of the testicle is to be found at the opening of the vas defferens in the prostatic inch, so the mouth of the ovary and the point where its irritations start is the uterine orifice of the Fallopian tubes. This spot is the favorite seat for uterine granulations, which may be very easily removed by means of the swab described.

In cases in which the whole uterine tissue is fibrous in its nature, vegetations upon the surface of its mucous membrane will also be tough and fibrous, and in such cases it will be necessary to resort to the uterine curette. The surface should be carefully smoothed either with a cotton-protected sound, or the curette, and then the uterine cavity should be thoroughly douched with warm water, medicated or plain, according to the judgment of the surgeon.

After having finished treating the endometrium, before removing the vaginal speculum, direct a stream from the douche tube against the end of the cervix for a few minutes; then remove the speculum and permit the stream to play over the pudenda for a short time.

In the chapter upon the male sexual system I advise the dipping of the point of the penis in warm water after the use of the sounds in an irritable urethra. The douching which I am now recommending is but the carrying out of this same principle. If irritations in the uterine cavity can produce hyperæsthesia of the clitoris, urethra and vulva, applications of a soothing nature to these parts can travel in an opposite direction and relieve uterine congestions which would otherwise result.

It might be well to explain this point a little more thoroughly, as it is an important one. In Hilton's valuable work upon "Rest and Pain," the first volume of Wood's Library, you will find the statement, which is anatomically correct, that where a nerve of the cerebro-spinal system goes to supply the surface of a joint, another branch of the same nerve supplies the muscles which move the joint, and still another branch of the same nerve is distributed to the skin surface covering both the muscles and the joint. As a result of this nervous connection, when a joint becomes inflamed, the muscles which move it spasmodically contract, and the skin over the surfaces becomes hyperæsthetic. If distress can thus travel from a knee-joint to the surface of the skin, applications to the skin can carry in a reverse direction, by the same nerves of communication, their soothing influences to the irritated joint. This is why external applications are so valuable in synovitis. The sympathetic nerve is distributed to the parts which it supplies upon the same principle. It is not simply a single nerve trunk which supplies the uterus, ovaries and pudenda, but a pencil of nerves which act in harmony, and a disordered function of any one of these nervous filaments can "jangle out of tune" any or all of the other nervous filaments.

In this way a uterine stenosis can induce a urethritis; can cause pudendal eczema; can induce hyperæsthesia of the clitoris; can locate an ulcerated spot, if you will, at any of the terminal nerve fibers of the pencil of nerves involved.

The pencil of nerves which supplies the sexual system is in very close sympathy with the pencil which supplies the last inch of the rectum, and by means of this close bond of union, health and disease are almost invariably expressed by all the lower openings in common. Perhaps this is why it is seldom found that but a single one of the lower openings of the body is at fault in cases of chronic disease. The marvelous nervous exchange of the sympathetic nervous system puts all portions of the human organism in very close relationship, but certain organs seem to constitute themselves into an apparatus for the performance of certain functions, and enjoy a closer relationship than exists between them and organs of another apparatus.

For instance, the breasts and female sexual organs are very closely joined by sympathetic cords. Multitudes of young women suffer from sensitive nipples at their menstrual period, the cause being some slight uterine or ovarian disorder. After child-birth, cracked nipples are of very common occurrence; they are usually attributed to the baby, and every effort is made and every care is taken to protect the nipples from the baby's mouth by means of rubber shields of various design, and great varieties of local applications are employed to heal them, usually with very unsatisfactory results, simply because the physician is fighting effects, and failing to recognize that the cause is not in the breasts or in the baby, but in the endometrium. A single careful swabbing and douching of the uterine cavity will almost invariably cure the most aggravated case of cracked nipples inside of three days' time.

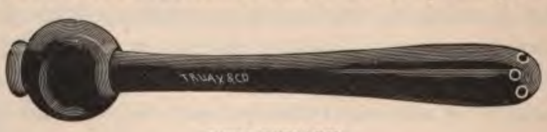
Tumors of the breast are of common occurrence, and yet for many years I have been hunting for any form of affection of the breast in which I cannot also find some form of uterine disease. Almost all the benign tumors of the breast can be dissipated without paying the slightest attention to the breasts, but simply by correcting whatever abnormalties may be found in the sexual system. On the other hand, uterine pains can be stimulated in sluggish labors by the application of fomentations to the breasts, and post-partum hemorrhage is readily checked by a vigorous nursing of the breast.

Having once thoroughly dilated and cleansed the uterine cavity and given to the patient a renewed stimulus of life by an imitation of nature's process of dilatation, the patient is now to be permitted to rest. Wait patiently for the reactive powers of nature to stimulate the patient to renewed life and activity, and do not hazard her well-being by meddlesome interference. You may visit her at regular intervals, and, if satisfied at the time of your call that everything is making favorable progress, do not even distress your patient by making an examination, but be content to let well-enough alone.

If, after a time, the patient ceases to make favorable progress, and recovery is not yet complete, the time has now come, whether it be a week, a month, or a year after the first operation, to start the patient anew on the road to health.

In the course of almost all forms of chronic disease the process of repair is accomplished by the institution of more or less acute conditions. This general proposition applies to uterine as well as to other conditions. If the organ be irritable, its orifices will be more or less stenosed, and their thorough dilatation will have a soothing effect. If, however, it be weakened, and bends over into some form of flexion, or continues in a state of subinvolution, or suffers from chronic torpidity and congestion, dilatation practiced to a proper degree will strengthen it and restore it to a normal state. In gynecological practice one will frequently meet with sexual systems so sluggish, with tissues so atrophied and degenerated, that even thorough orificial work at a single séance will fail to arouse the sleeping energies. These cases require oft-repeated treatment, and applications of electricity, or of alternations of heat and cold, until some signs of reaction can be observed. Occasionally, in an atrophied, stenosed uterus, it may be well to employ long-continued dilatation, which can be secured by some form of stem pessary. Of these there are two forms which are favorites with me. One is a split stem, bulbous at the uterine extremity. It is light and self-retaining.

This cut represents a pessary which I designed some years ago for this class of cases. Experience in its use leads me to recommend it with confidence where a stem pessary is desired.

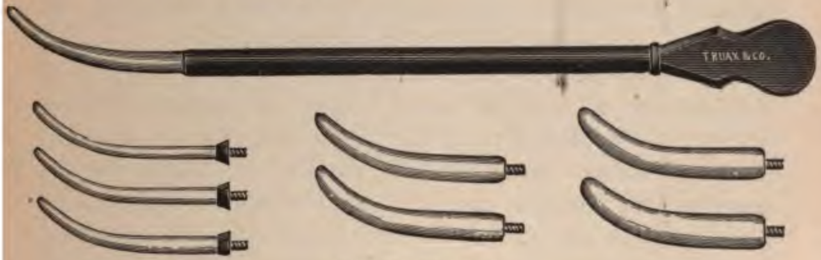


STEM PESSARY.

It is hollow, so that the uterine discharges can escape. It should be occasionally removed, as its presence induces more or less uterine contraction, and granulations that may be still left upon the endometrium are forced into the openings and broken off, thus occluding them. The instrument can be replaced after cleansing, if desired.

The stem pessary may occasionally be worn for several weeks with impunity, but the case should always be carefully watched, and as soon as the uterus begins to manifest any degree of irritation the usefulness of the instrument is ended and it should be dispensed with.

Cases of chronic uterine catarrh which are too irritable to tolerate the presence of a stem, and which fail to pass on to complete recovery as the result of the first work, will require subsequent dilatation at longer or shorter intervals, according to the behavior of the uterus after the treatment. The patient need not be anæsthetized for these subsequent dilatations, for it is not necessary to carry them to the extreme degree achieved at the first operation.



ELECTRIC SOUNDS.

As the introduction of sounds, however, is sometimes painful, I would advise those who have not already purchased their sounds to procure the new ones which I have devised, as they are electrodes as well as dilators, and by the aid of electricity their passage into the uterine cavity is made almost painless. In addition to the stimulating effect of the dilatation you also secure the advantage of the galvanic current, which is a great stimulus to nutritive changes. The above is a cut of the sounds which I would recommend for this work.

These subsequent dilatations, in cases of atony and atrophy, can be made at the office with impunity, but where the reactive power is great, and the uterus is sensitive, resenting explorations of its cavity, great care must be exercised in the use of sounds, and the treatment should always be given at the patient's home. The recumbent position for the patient should be insisted upon for a few days.

In cases of uterine catarrh, where thick strings of mucus hang from the extremity of the cervix, dilatation of the uterine cavity and electricity and intra-uterine medication will, one or all, be required at frequent intervals until some degree of irritability gives warning that sufficient reaction has been induced to secure beneficial results without further interference. In practicing dilatation upon such cases, the late Dr. Lusk, of Battle Creek, Michigan, suggested a rule which I find to be a good one. He used larger and larger sounds at each séance, without an anæsthetic, until the mucus clung to the surface of the sound and was brought away by it. The galvanic current, or intra-uterine medication, can then be employed, at the discretion of the gynecologist.

There is still another method, which, if properly employed, is the best of all as a last resort in cases of extreme atrophy and extreme hypertrophy, in the tough, fibrous and spasmodically contracted uterus, and in the hypertrophied, flabby, catarrhal and patulous one, or, in other words, where mere dilatation does not seem to be sufficiently vigorous to induce the required degree of reaction in order to secure the nutritive changes sought for in the uterus and in the general system. I refer to what may be called uterine packing. It is more beneficial than other methods because it is more nearly akin to nature's method of accurately and completely filling the entire uterine cavity with a substance which must be finally expelled. The fault with a stem is that it does not touch the horns of the uterus, and, consequently, a considerable surface of the endometrium does not receive the benefit of the temporary pressure and dilatation.

The best material which I have to recommend for uterine packing is candle-wicking. To be prepared for use it is first to be boiled for an hour in a five per cent solution of carbolic acid, after which it is to be boiled for another hour in pure water. It is then to be wrapped in antiseptic gauze, in which it can be kept ready for use for an indefinite period of time.

When the surgeon has decided that packing is called for in a given case, as soon as he has thoroughly dilated, swabbed and douched the uterine cavity, after the manner already described, a sufficient amount of the candle-wicking is to be dipped in pure glycerine, or in boro-glyceride, in cases where the patient has an idiosyncrasy hostile to the action of glycerine, and with a pair of uterine dressing forceps, while a tenaculum is holding the uterus in place, the entire uterine cavity is to be packed solid as far as the external os with the candle-wicking. The wicking is now to be severed, the tenaculum loosened, and a pledget of cotton, also saturated in boro-glyceride, is to be carefully wrapped about the cervix, having been previously secured by a string so as to render it easy of removal. The patient is now to be confined to her bed and the packing allowed to remain in situ for from twenty-four to forty-eight hours, according to the irritability of the case, allowing it to remain the longer interval in sluggish cases.

When the patient wakes from the anæsthetic her sufferings will occasionally be sufficiently acute to require the use of a hypodermic injection of morphine, from one-quarter to one-half grain, perhaps, to make the process endurable. At the end of twenty-four or forty-eight hours the patient is to be placed upon the operating table, the vaginal tampon and the wicking to be removed, and the uterine cavity thoroughly douched with a saturated solution of boracic acid. After the uterine cavity has been well dried, a four per cent solution of cocaine is to be thrown into it, and the packing reapplied or not according to the reaction excited. The uterus should be treated daily in this manner, where more than one packing is required, until the offensiveness which the packing presents upon removal for the first three or four times has entirely passed away. The change in the nature of the secretions indicates that the old inflammatory products which the glycerine has leached from the uterine mucous membrane and its subjacent tissues, have been removed, and the process is complete.

Occasionally a uterus will show a disposition to expel the packing by its own contractions. In such cases but one or two packings will be called for. In others, however, the foul débris which will be drawn away by the action of the glycerine and the distension upon the endometrium will not be completely removed short of six or seven repetitions of the process.

There is no danger of metritis, cellulitis or ovaritis in this process, if it be carefully employed and if it be stopped as soon as reaction appears. On the contrary, many cases of chronic ovaritis, salpingitis and metritis will find a very happy relief in this thorough and satisfactory proceeding.

After the packing process is once completed the case should be followed up with vaginal tampons medicated with glycerine for a few days, after which this may be abandoned, and the cases treated for a short time with daily douchings, which may be discontinued as soon as the patient is convalescent. The woman should be confined to bed for a week or so after the tamponing process is completed, and treated in every way as though she had suffered a confinement or miscarriage.

I cannot speak too highly of this measure in the cases already referred to as calling for it, although I am well aware that, unless used with extreme caution and confined to the proper cases, it is capable of doing much mischief. After the employment of this measure the patient is to be left entirely unmolested for a series of weeks and months; in fact, so long as she continues in good general health and has no local suffering to complain of. The surgeon must remember, however, in this as in all processes of interference with the endometrium, that he is curing chronic conditions and instituting nutritive changes by inducing more or less acute forms of irritation, and that there is some slight risk of producing uterine atresia unless it be averted by an occasional use of the sounds later in life.

CHAPTER VI.

LACERATIONS OF THE PERINEUM AND OF THE CERVIX UTERI.

LACERATIONS.

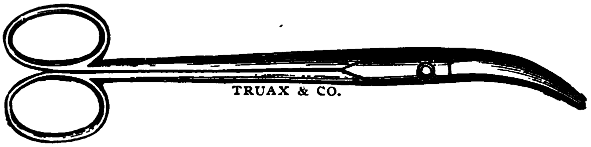
THERE are two operations which are so frequently required in orificial work, that I shall deviate from my intention to omit subjects treated of in standard text-books, and invite attention to their brief consideration. These are lacerations of the perineum and of the cervix uteri.

As the vulva is but the outer gateway to the sexual chambers, it is one of the less important openings, but still deserves some attention. A labor which has torn the perineum has probably been sufficiently violent to overdistend the vagina and seriously interfere with its tonicity, leaving it in a distended, baggy condition. Coäptation of its walls no longer acts as a sustaining influence to the uterus, and the entire pelvic contents are crowded downward into the unrepaired rent. Cystocele, rectocele, prolapsus uteri, and even procidentia, may result. Cases of procidentia will require plastic operations upon the vagina in almost all cases. The same is true of bad cases of cystocele, but a rectocele usually disappears when the rent in the perineum is properly repaired, especially if the surface of the rectocele be denuded and its edges approximated.

There are two perineal operations which will be all that will be necessary to mention in this connection. One is for complete laceration through the sphincters into the bowel; the other is a form of operation in which the tear simply extends to the sphincters, but not through them.

Regarding the question of immediate repair of a ruptured perineum, there is a division of opinion in the profession. Many operators prefer an immediate stitching of the parts, and they report satisfactory results. An equally large number reports more satisfactory results from simply confining the patient to the dorsal position for a few days, dressing her with a perineal pad, and fastening the knees snugly together with a bandage. As a result of the bruising sustained by the confinement, the perineal tissues are very much softened, and a stitch introduced at this time appears to be a source of irritation, and it is liable to induce suppuration, followed by non-union. If repair is decided upon, antiseptic methods should be employed, and the stitches should be deep ones to avoid the danger of sloughing through the softened tissues.

The operations which will now claim attention are for the old cases in which the perineum failed to unite, and the raw surfaces have been covered by cicatricial tissue. The rupture should be at least three or six months old before any attempt at repair should be made, so as to permit a good circulation to become re-established through the parts. In cases where the sphincter muscles of the rectum have been torn apart, an effort should be made to unite them. The first step in the operation is to secure the ends of the sphincter muscles in the hold of two good-sized tenacula. The operator is then to sever, by submucous method, the sphincter muscles on one or both sides of the anus, well back toward the coccyx. The ruptured surface is now to be denuded by raising four flaps of tissue, starting the flaps midway between the vagina and the rectum. Two of the flaps should curl backward to complete the rectal wall, and two should curl forward so as to rebuild the perineal wall. Superficial and deep stitches, the former of silk and the latter of wire, should be passed from side to side to secure the coäptation of the parts. The wire is best secured by perforated shot guarded by a metallic shield



CERVIX AND PERINEAL SCISSORS.

or button. A perineal pad and ordinary after-dressings are then made for from eight to twelve days, after which time the stitches are to be removed.

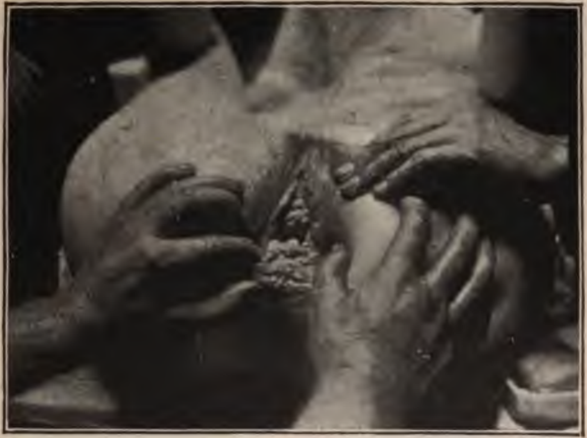


FIG. 33.

Fig. 33 illustrates the appearance of a case ruptured *to* the sphincters needing an operation.

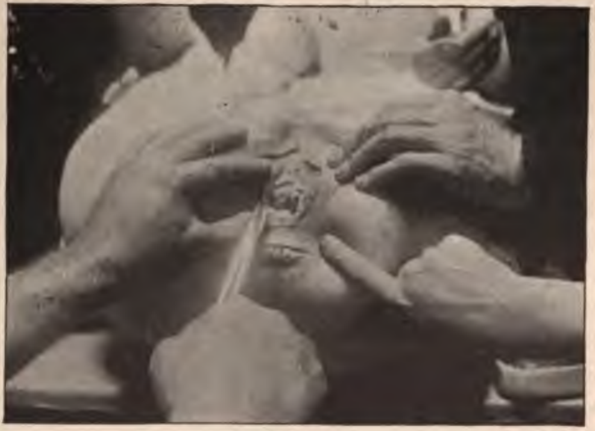


FIG. 34.

Fig. 34 illustrates the manner of nicking the sides of the vulva so as to limit the lateral margins of the denudation proposed.

Where the sphincters have not been ruptured, the wound simply extending to them, the rent of the perineum may be repaired satisfactorily by the following method :

With the patient in position and the part thoroughly cleansed and prepared for the work, a slight nick is made on either side of the vulva half way between the posterior fourchette of the perineum and the meatus urinarius (Fig. 34). This mark made at the junction of the skin and mucous membrane designates the point which is to limit the anterior extremity of the new perineum.

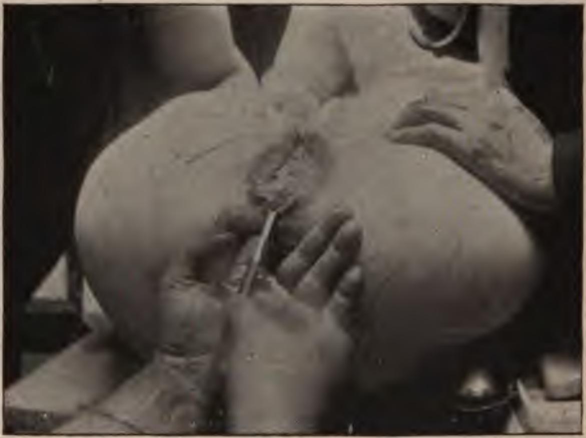


FIG. 35.

Fig. 35 shows the way to transfix the vagino-rectal septum with a long narrow-bladed bistoury as far up the vagina as the denudation is to be made, the track of the knife being a good guide in the denuding process. Neither the rectum nor vagina is to be wounded.

With the fingers of the left hand in the rectum, a long-bladed bistoury is now made to pierce the vagino-rectal septum for from one to three inches, according to the amount of rectocele present, care being taken to wound neither rectum nor vagina (Fig. 35). As soon as the knife is removed, a pair of artery forceps seizes the upper lip of the wound, and is held upward by an assistant, while the operator, with a sharp-pointed pair of scissors, severs the mucous membrane from the skin as far as the lateral landmarks, previously made on the side of the vulva. Two additional pairs of artery forceps now seize the upper edge of the cut, one on either

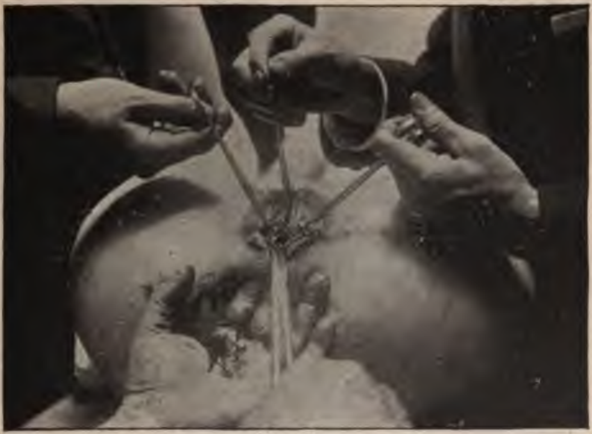


FIG. 36.

Fig. 36 illustrates the processes of splitting the vagino-rectal septum; or, in other words, raising the vaginal flap — the edges of it being held upward by artery forceps in the hands of assistants, while the operator, with a pair of sharp-pointed scissors, is severing the tissues beneath it.

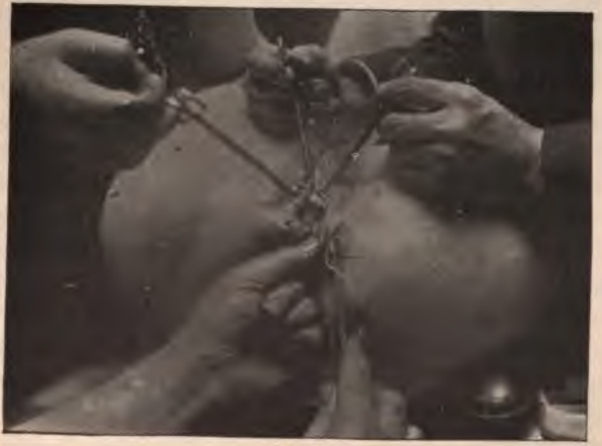


FIG. 37.

Fig. 37 illustrates the position of the parts and instruments while introducing the first stitch.

side, so that the lower edge of the vaginal mucous membrane, which has now been completely severed from the skin, is held upward by three artery forceps in hands of assistants (Fig. 36). As soon as a flap of sufficient size has been raised, while the assistants are still using traction on the forceps attached to its edge, the operator proceeds with the introduction of the stitches, beginning with the one nearest the anus.

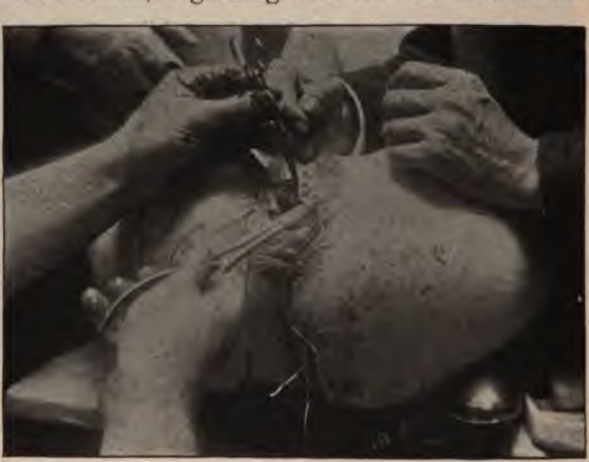


FIG. 38.

Fig. 38 illustrates the position of the parts and instruments while introducing the last deep stitch.

Three deep sutures—the lower two completely covered in their course, and the upper one transfixing the tissues at the side, and slightly in the middle—are to be introduced, and as many superficial ones as are required to nicely coäpt the edges of skin, and also the edges of the raised flap; the superficial stitches are first to be tied, and then the deep ones (Figs. 37, 38 and 39).

The main objections to this operation, which is essentially the one invented some years ago by Prof. J. W. Streeter, of Chicago, are that it leaves a ridge along the posterior wall of the vagina, the lower end of which forms a more or less marked teat, which often requires subsequent snipping off, and that it puckers the tissues into too much of a wad to constitute a smooth and satisfactory perineal body. It is much better to remove this entire flap, and carefully and evenly coäpt the sides of the wound. The advantages of this method are the protection which the roof affords from all vaginal discharges, and the uniform healing secured.

Let me describe the operation which seems to me preferable even to this ingenious method.

The lateral margins of the surface to be denuded are to be marked with a small nick of the scissors, as in the operation just described. A sharp-pointed pair of scissors is now made to sever the mucous membrane from the skin, from one of these marks to the other around the arms of the U which describes the rupture in the perineum. The finger of the left hand is now to be inserted in the rectum to the extent of two or three inches, according to the amount of rectocele present. By bending the finger forward the vaginal wall can now be well protruded into the vulva. The center of this protrusion is to be seized by two T-forceps, being careful to grip no deeper with them than the vaginal mucous

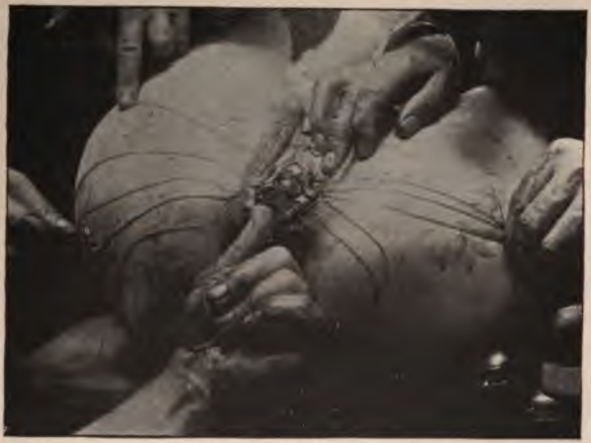


FIG. 39.

In Fig. 39 the proper amount of surface has been denuded and the stitches all inserted and lie symmetrically disposed on each side, being now ready for tying; they are to be united from above downward.

membrane. The forceps are to be attached to the mucous membrane in line, one above the other. An assistant is now to seize the forceps, and while the operator is still protruding the rectocele into the vulva by the finger which is introduced into the rectum, with a pair of scissors he is to start at the mark which he has made on the side of the vulva which is to limit the incision laterally, and inserting one blade beneath the mucous membrane at this point, is completely to sever the mucous membrane of the vagina in a straight line running down from the point of insertion of the scissors to the upper extremity of the farther pair of forceps. The assistant is now to practice tension upon the forceps symmetrically in the opposite direction, and the operator is to repeat the process upon the other side of the vagina. The forceps are to be loosened from their grasp and seize the piece of mucous membrane which is to be removed, at one of the margins of his incision. The operator is now to take the forceps in one hand, and by stretching the tissues over the index finger of the same hand, it is a simple matter for him, with the closed points of his scissors, to tear the piece of membrane which he has outlined from its bed. In other words he is literally to skin the surface which he desires to obliterate, exercising care so as not to wound the walls of the rectum in the process. This is a very rapid, simple and satisfactory way of denuding the surface, and the denudation can be made of any size or shape deemed best in the judgment of the operator.

The operator is now to insert the index finger of the left hand into the rectum and protrude the denuded surface into the vulva preparatory to the insertion of the stitches. These would better be of silk, and are to be inserted from side to side, beginning at the upper angle of the wound. It is well to have at least every other stitch buried in the center of the denuded surface, as well as transfixing the margins of the wound. The objection to using completely buried sutures is that it makes an undue puckering of the tissues and chokes them to such an extent as to interfere with the proper healing of the wound. The last three stitches which are made to transfix the skin surface may be of silver wire instead of silk, if the operator prefers, No. 24 wire being the best size for this purpose (Figs. 40 and 41).

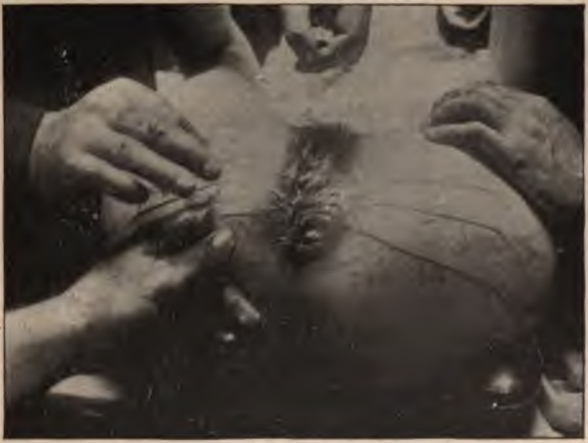


FIG. 40.

In Fig. 40 the superficial sutures have been tied, the threads left long and in a bunch, held tense by an assistant, while the operator is about to tighten the deep ones which now are spread across the buttocks.

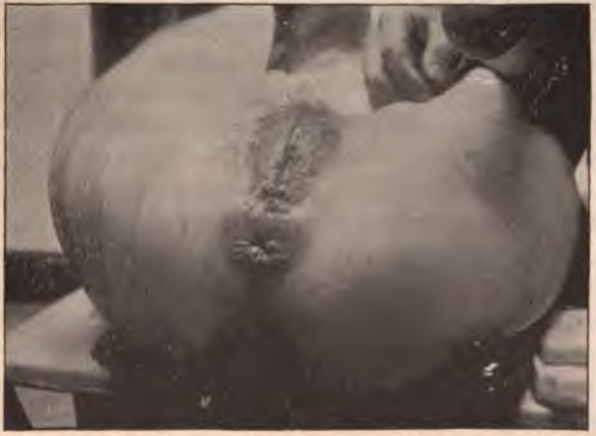


FIG. 41.

Fig. 41 shows the appearance of the parts after the completion of the operation.

One reason why perineal operations are failures is because the scarification of the surface to be united has not been sufficiently thorough. The teaching which I received upon this subject when in college was to denude the surface by seizing a spot with the hook of the tenaculum, and then, with a pair of scissors, snip off a small piece of the mucous membrane. The whole surface to be denuded was to be picked over in this manner and the parts brought together. Many times very little beyond the epithelial layer was removed, and so in my first operations I met with many failures. But where the whole mucous membrane is removed the surface is most thoroughly denuded, and the circulation in the parts beneath is sufficiently active to insure repair.

I have performed many operations after the manner above described, and they have been uniformly so satisfactory that I feel justified in recommending it to others with confidence. The final result is simply perfect. The perineal body is as extensive as the operator chooses to make it, and its vaginal surface perfectly smooth and free from all sources of irritation.

LACERATIONS OF THE CERVIX UTERI.

Lacerations of the body and cervix uteri have a deeper significance to the orificialist than those of the perineum, because they vary the tension of the internal and external os and often result in cicatricial formations which act as sources of irritation to the sympathetic nerve filaments in their neighborhood. A uterine tear is a ragged wound, and longitudinal nerve filaments are often exposed by them and become entangled in the subsequent cicatricial formations. Especially is this true of lacerations of the internal os, where the nerve filaments are of considerable size. It is a characteristic of all cicatricial formations that they contract more and more each year, and when they entangle nerve filaments in their meshes the pinching of these filaments must increase with the contraction of the scar. The nervous system involved is the sympathetic, and, therefore, the systemic disturbance will be one of a character to affect the nutrition of the body, and its reactive powers. By the connection of this nervous system with the cerebro-spinal, neuralgic symptoms may follow, although the chief mischief is liable to be wrought upon the capillary circulation and the functions of the various organs which depend upon the sympathetic nerve for their stimulus. The function of menstruation softens the uterine tissues periodically, and until the menopause the contraction of the scar involving the nerve filaments in its grip may not be sufficiently serious to disturb the equilibrium of the body. After this period, however, serious mischief is liable to follow. Still, in many cases, a cicatricial plug can induce a premature change of life, or can unduly protract it; or, it can manifest its baneful influence by producing an endless variety of functional derangements, even during menstrual life. In the majority of cases, however, the harm coming from a laceration of a body or cervix is not immediate, and it may be anywhere from five to thirty years after the accident before the general health begins to be impaired by its presence.

During menstrual life it is common practice to examine the sexual condition of women when they suffer from headache, dyspepsia, spinal irritation, or any other form of chronic disorder, it being now pretty generally understood that uterine pathology is capable of expressing itself in the language of reflexes. But the profession seems to forget that after the menopause a woman still possesses a uterus, which is still supplied with nerves, and still capable of exciting the same eccentric mischief in distant parts of the body, as it was when she was younger.

Lacerations of the body and cervix, as they present themselves for the consideration of the gynecologist, are in two forms; those which have healed and those which have not. A third class, intermediate between these two, might be added, namely, those which have partially healed, and which, although presenting a gaping rent in the cervix, also present a cicatricial plug at the bottom of the wound. The lacerations which have perfectly healed are always overlooked by gynecologists; in fact, the laceration is sometimes confined to the internal os, and the cicatricial plug situated at this point is not easy of detection. Indeed, there is ample reason why it should escape the notice of even a skilled gynecologist in the fact that the parts have a nearly normal appearance. In examining for the presence of the cicatricial plug in a case which has healed, it is better to do so just before or just after menstruation, as the uterus is then considerably congested and the hard extremity of the scar can often be felt at these times when it could not be in the middle of the menstrual month. Sometimes the hard point of the scar is sensitive to pressure, and sometimes the presence of a small cyst at this point can easily deceive a surgeon and make him think there is a cicatricial plug when there is nothing but a little bag of mucus. By passing the sound through the internal os and palpating through the cervix against it, the presence of a cicatricial plug can also be sometimes felt. But even in such cases it is not possible, especially if the scar be an old one and considerable contraction has already taken place. In cases of uncertainty as to the presence of a scar, and where the surgeon is satisfied

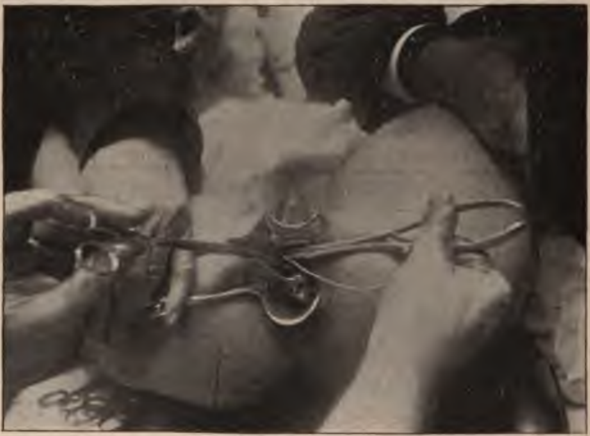


FIG. 42.

Fig. 42 shows the way of introducing the guy ropes with which to steady the uterus for operative work; while a double vulcellum grasps a lip of the cervix, a curved needle carries a thread through it. The other lip, and a third, if there be one, is to be treated in a like manner.

that there is some form of irritation at the internal os, it is good practice to slit the cervix open on either side to a sufficient extent to bring the internal os well into view. As the scissors sever the tissues the operator can very quickly discern whether he is cutting normal uterine or cicatricial tissue. If cicatricial tissue is found, by means of a tenaculum

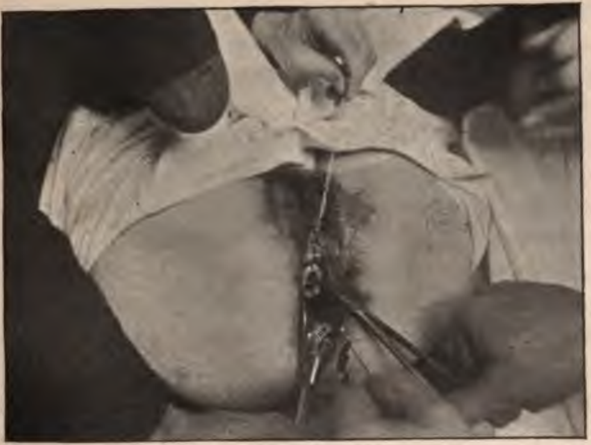


FIG. 43.

Fig. 43 illustrates the manner of making an exploratory incision in the cervix in search of scars, or polypi at the internal os. A thread has been passed through each lip of the uterus, and while assistants use traction upon them the operator severs the cervix on each side with scissors as far as practicable.

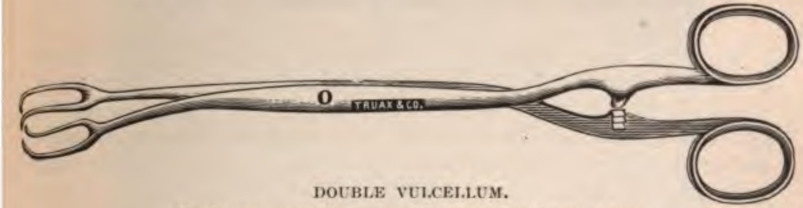
and sharp-pointed pair of scissors, it can then be very carefully and neatly dissected out and the operation completed. If no cicatricial tissue is found, the wound can be closed and no harm will result from the exploration.

In places where the laceration is but partially healed, the operator must be careful to remove the cicatricial plug at the bottom of the wound, as well as the gaping surface. Lacerations which are still gaping to the original extent of the tear, the wounded surface being simply covered by a cicatricial formation, are usually confined to the neck of the uterus, and are so evident as to be discernible even by a layman. These latter seldom occasion reflex symptoms, but simply institute degenerative changes in the cervix itself, inducing erosion and hyperplasia of the cervical tissues, constituting merely a local trouble which immediately disappears as soon as the rent is properly repaired. The operator must remember in dealing with cicatricial formations in the cervix that the hardness of the formation is relative to the hardness of the uterus. In atrophied, fibrous conditions of the organ all cicatrices will be quite horny, but where the uterine tissues are soft and succulent, the scars are correspondingly soft. In all conditions the tissues will be tougher and harder to cut than the uterine tissue in which it is imbedded.

It will be readily understood from what has already been said that lacerations of the cervix are of less consequence than lacerations of the internal os; that operative procedures which do not take into consideration the condition of the internal os are scarcely thorough enough to insure beneficial results.

The uterine artery, which enters the uterus on either side opposite the internal os, bifurcates and anastamoses so as completely to surround the upper extremity of the cervix with a circular blood-vessel, which has properly been termed the *circular artery*. The artery is located midway in the cervical wall at a point opposite the internal os. The wounding of this artery is a very serious accident, and in operations for the removal of cicatricial tissue at the internal os, a careless operator is liable to incur this danger. If a laceration involves this artery it will cause its obliteration, so that it will no longer be endangered by operative interference. If the laceration is but partial, simply extending to the artery, the operator will be in no danger of wounding it, so long as he confines his cutting to the cicatricial tissue. It is advisable, therefore, when the wound is a deep one, simply to remove the central part of the cicatricial tissue at the upper portion of the wound, leaving a veneering of it still clinging to the surface. In other words, to tunnel the scar on its outer side instead of attempting its entire removal in the first dissection. This veneering of cicatricial tissue can afterward be removed in thin slices by the use of tenaculum and scissors until the softened nature of the structures on which one is working gives warning that the last vestige of the cicatricial plug has been removed, and that a deeper wound of the uterus would endanger the circular artery, or possibly wound the peritoneum, which is in close proximity to the lower extremity of the uterine body.

With these preliminary remarks, let us now follow in detail two operations for laceration of the cervix; one where the wound has entirely healed, and the other where it has either healed partially or not at all.



DOUBLE VULCELLUM.
Used to steady the uterus while inserting the guy ropes.

As a preliminary to the operation, the uterus should be secured in proper position by vulselli or guy ropes, and the uterine cavity should be dilated, swabbed and douched, as previously described for cases of diseased endometrium. Where the wound has entirely healed the external os presents a rounded appearance, as in a virgin, and is to be left in this ideal state. No tissue, therefore, is to be removed from the extremity of the cervix (Figs. 44 and 45). The first incision in this case, after introducing the "guy ropes," with which to handle the uterus, is completely to sever the cervical tissue on either side, until the wound gapes to a sufficient extent to expose the cicatricial plug that you are in search of. This plug is now to be seized with a tenaculum entering it from the side of the canal, and is to be carefully tunneled out, care being taken to leave an undenuded tract of mucous membrane on opposing surfaces of the cervix, and that the

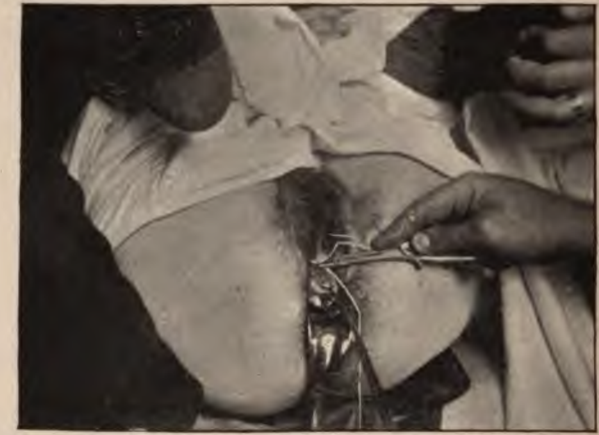


FIG. 44.

Fig. 44 illustrates the manner of inserting the guy ropes. While a double vulcellum is drawing the uterus down as far as it will come without violence to its supports, the threaded needle is made to pierce the anterior lip. The thread should be a long one, and when pulled half way through, tied and passed to an assistant, while a similar process secures a guy rope in the lower lip, and also in the lateral lip if there be one.

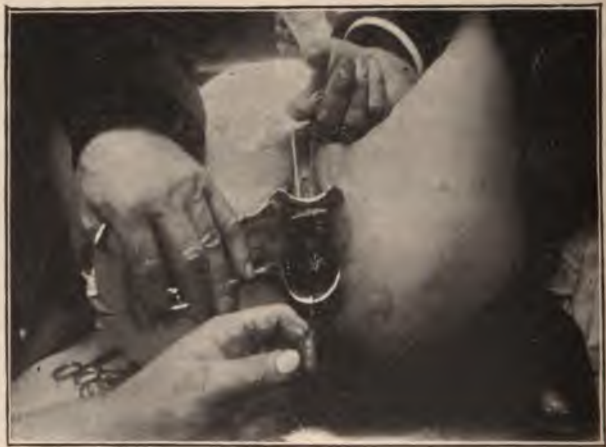


FIG. 45.

Fig. 45 shows appearance of a well healed cervix after the guy ropes have been introduced and the uterus is held in position for operation.

edges of this tract be made perfectly straight. One will find no difficulty in determining, with the point of the scissors, whether one is cutting cicatricial or uterine tissue, if the distinction, already given, relative to the hardness of the scar and the tissue in which it is imbedded, be kept in mind. When found, the plug is to be entirely removed, and sometimes the dissection will have to be carried for a little distance beyond the internal os. In a few instances I have been compelled to go within an inch of the fundus of the uterus. When the dissection has to be carried very deep, the gaping of the cervix should be widened as much as possible by slitting the cervical tissues on either side as far as is deemed safe by the operator (Figs. 46 and 47). This point can be settled by locating with the index finger, or with the sound, the situation of the internal os, the severing of the tissues being perfectly safe through the full thickness of the cervix to within a sixteenth of an inch of this point. Should

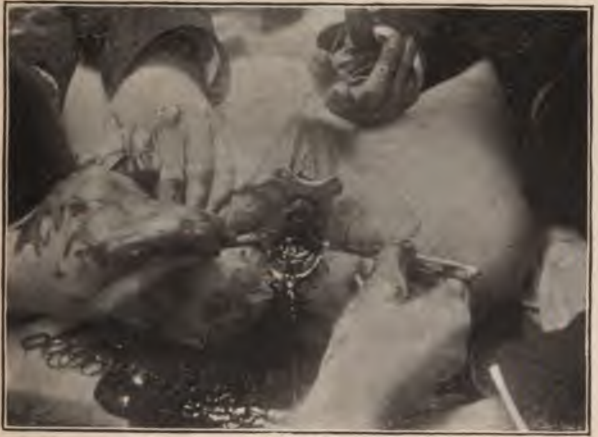


FIG. 46.

Fig. 46 illustrates the appearance of the parts in a deep dissection. The lips are held gaping by the guy ropes, a tenaculum in the left hand of the operator is caught into the last bit of scar, and a bistoury in the right hand is cutting it out. A careful study of the cut will also disclose the unmolested track of mucous membrane along the inner surface of each lip.

the dissection be carried too far and the circular artery be wounded, the gaping of the wound is sufficient to place the artery entirely within the control of the operator (Fig. 48). The bleeding point can be immediately seized by artery forceps, and the bleeding checked either by torsion or ligature, as the operator may determine.

Although I have been performing this operation for about fifteen years, and have operated upon many hundreds of cases, I have been unfortunate enough to wound this artery but three times, and those accidents were before I conceived the idea of widening the field of operation by slitting the cervix open to its limit. None of the cases, however, proved fatal, although the hemorrhage was sufficiently profuse to make me anxious to check it as speedily as possible. At that time I accomplished the object by inserting a deep stitch through the cervix at this point, tightly coäpting the wounded surfaces. Should this same accident occur in my present mode of operation, I am sure that the gaping nature of the wound which I now make would enable me to secure the

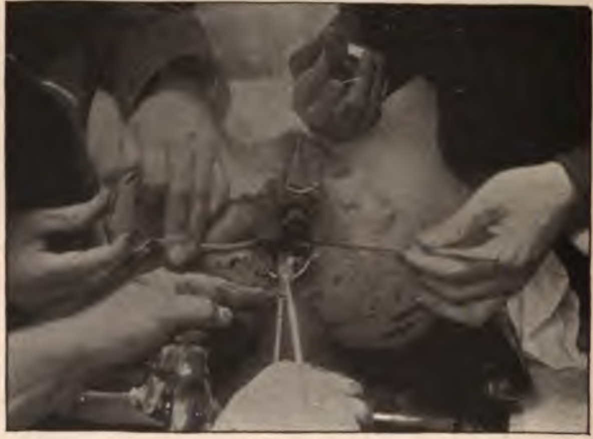


FIG. 47.

Fig. 47 illustrates the process of dissecting out the plug with scissors. Assistants are holding the lips wide apart, and a tenaculum is steadying the plug.

bleeding vessel with the artery forceps, and it would be a trifling inconvenience, at most.

After the scar is thoroughly removed, the edges of the mucous membrane left still unremoved on the upper and under surfaces of the cervical canal should be carefully straightened, if this matter has not already been accomplished in the process of the operation, and the external os should be properly shaped. After the broad surface of the wound has been nicely smoothed, the raw surfaces are to be coäpted by sutures. I am not sure that the perforated shot sutures are not the best means of securing this coäptation. For many years, however, I have used silver wire No. 27, introduced through the cervix so as to pierce the cervical tissues of the wounded surface close to the margin of the remaining tract of mucous membrane, and twisted down closely on the vaginal side so that when slight tension is made on the

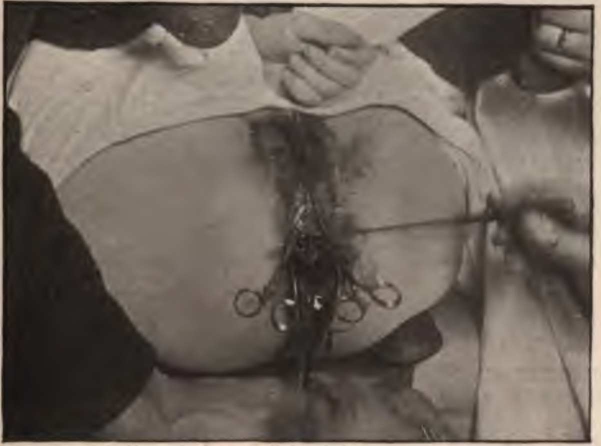


FIG. 48.

Fig. 48 illustrates the manner of dealing with the circular artery, should it be wounded on one or both sides. The wounded vessel is to be seized with artery forceps, as in any other bleeding surface, and secured by torsion. The remaining part of the plug can then be cut out, and the wound closed.

twist, the point where the wires separate still hugs the tissue (Fig. 49). The twist is now to be severed at a distance of three-quarters of an inch from the cervix. The end of the twist is to be curled on itself, as seen in the following cut, by means of Danforth's uterine artery forceps. The stitches are to be placed about a quarter of an inch apart, and usually three of them are sufficient for closing one side of the cervix.

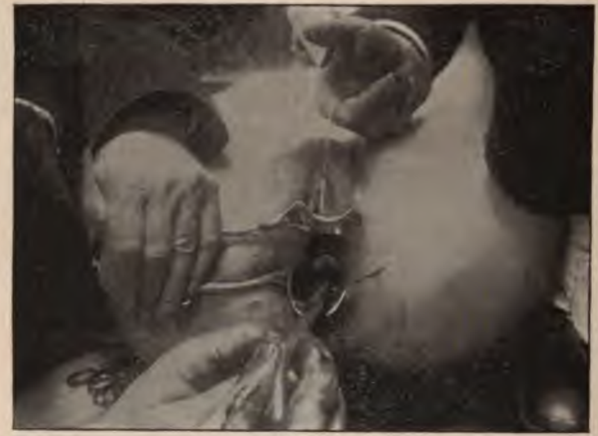
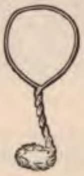


FIG. 49.

Fig. 49 illustrates the manner of applying the first stitch, which is the highest one; this is done with a fulled curved needle, the operator controlling the guy rope of the lip he is transfixing with his left hand, while his right uses the needle holder.

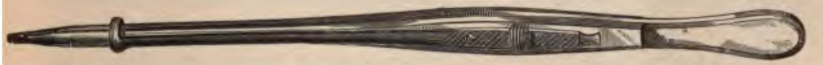


WIRE SUTURE.
Illustrating way of securing the end of the wire.

The lacerations under consideration are sometimes unilateral, sometimes bilateral, and sometimes trilateral. I have never seen more than two deep lacerations in a single cervix.

Where there are three or more lacerations in a cervix, while one or two of them may extend to and beyond the internal os, the remaining ones are quite superficial and do not seriously complicate the work.

Where the lacerated surfaces have never united, but remain a gaping wound, the ruptures involve, in many cases, the cervix only, and constitute merely a superficial injury which is not prolific of reflex troubles. Where the laceration, however, has been deeper, involving the internal os, and the lower portion of the body of the uterus, even although it has healed, and although there is considerable local trouble, still, more or less reflex symptoms will be apt to follow. As a rule, reflex symptoms are in inverse proportion to the local mischief which is apparent; that is to say, cases presenting a large amount of erosion and hyperplasia and unhealed ruptured surfaces, although they occasion considerable backache and dragging down of the parts, the aches and pains occasioned by them are almost entirely confined to the pelvic region, and at once disappear on repair of the wound. When the irritation passes farther up the sympathetic nerve, so as to occasion stomach, liver, heart, lung, brain and spinal cord disorders, there seems to be at the same time a reflex of congestion, according to the general principles laid down in the first chapter, and the local irritation found seems wholly insufficient to occasion so much mischief.

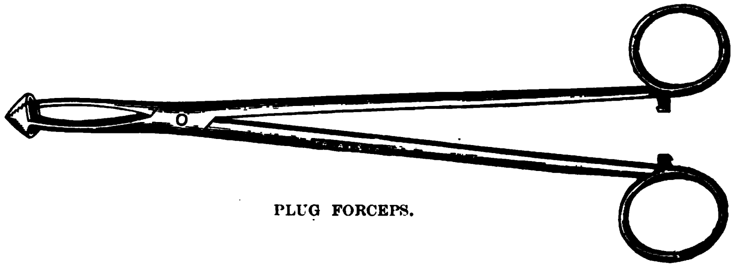


DANFORTH'S ARTERY FORCEPS.
Used in curling ends of twisted sutures.

Where the internal os has been lacerated, dilatation of the uterus as advised in conditions of endometritis is usually harmful, as it irritates the cicatricial plug and sets up general nervous disturbances as a result of the nerves confined in the scar. I would never dilate a lacerated uterus except at the time of the operation, when, as previously stated, it is to be thoroughly dilated and swabbed out, as the first step in the operation for the repair of the laceration. For some years I was afraid to follow this method, but I now know it to be the only safe practice.

Where an unrepaired rent is to be operated upon, the guy ropes are to transfix the anterior and posterior lips, or three lips if it is a triple laceration, and after the dilatation and swabbing of the uterus, the guy ropes are to be passed to the hands of an assistant who is to hold them taut at uniform angles so as to bring the parts well into view. A sharp-pointed pair of scissors is now made to sever the mucous membrane at right-angles to the mucous membrane to be denuded, and within a sixteenth of an inch on either side of the guy ropes. In bilateral lacerations this will make four symmetrical wounds, which subsequently determine the size and form of the external os. The object in making the slits perpendicular is completely to sever the epithelial membrane of the mucous structure lining the cervix, so that healing will take place accurately to the extent desired. A beveling denudation of the surface would not heal to the very beginning of the beveling, so that the final result would be a long and unnatural os.

One blade of the sharp-pointed scissors is now to pierce the cervix at the vaginal extremity of one of these first incisions, and to be pushed around the edge of the tear to be denuded, severing the tissues at the junction of the vaginal covering until the wound reaches the vaginal extremity of the wound upon the opposite lip, which marks the outer limit of the os. A pair of plug forceps is now made to seize the crotch of the



PLUG FORCEPS.

laceration, and while slight traction is being made upon them, a pair of scissors is made to remove the cicatricial surfaces and the hypertrophied membrane, practically reproducing the original tear except that the wound is a cut instead of a laceration.

In denuding the margins of the laceration, care should be taken to leave a strip of mucous membrane from one-quarter to one-half an inch in width on the inner side of each lip which is not to be removed. The edge of this membrane must be perfectly straight, so that the cervical canal which is to result from the work will be straight and symmetrical, and so that there will be no possibility of an atresion of either the canal or the internal os.

Here is a triangular surface, then, bounded at its outer margin by the vaginal covering of the cervix, and bounded on the other two sides by the margin of the unmolested portion of the mucous membrane which covers the cervical sides of the two lips. The tear upon the opposite side is to be treated in a similar manner. If tension be now made upon the guy ropes, the whole surface will be seen to gap widely open, and either side will present a perfectly fresh wound entirely denuded of all cicatricial tissues and mucous membrane. If at the bottom of the wound cicatricial tissue is found next the cervical canal, and, of course, it will not be found elsewhere, this plug is to be carefully dissected out in the manner already described, this constituting the third variety of operative procedures for laceration of the cervix, which we are discussing. Stitches are now to be applied for the coäptation of the cervical walls, just as in the previous operation. The patient is to be placed in bed, kept in dorsal position, although there is no reason why a lateral position may not be assumed occasionally, orders simply being given that the patient is not to be permitted to roll from side to side. A change of position two or three times a day will not interfere with the healing of the wound or induce inflammatory processes, and it is better to have the patient comfortable by an occasional change of position than to subject her to the physical distress and mental anxiety occasioned by compelling her to remain in exactly the same position for several days at a time.

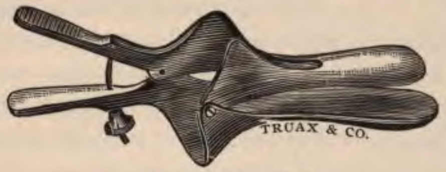
A compress, medicated or not, is to be kept over the hypogastric region. It is to be kept moist for three or four days until all congestion and tendency to inflammation have subsided.

If the operation be performed in the morning, on the evening of the same day, in the majority of cases the temperature of the patient will rise from one to three degrees. Occasionally catheterization will be required. This is not always necessary, however, as it does no harm to permit the patient to evacuate the bladder unaided if she is capable of doing so while in the recumbent position. Upon no account must the patient sit up for any purpose whatever, until the stitches have been removed. On the morning following the operation almost invariably all rise of temperature will have disappeared, and the patient will experience no inconvenience, being perfectly comfortable during the rest of her confinement.

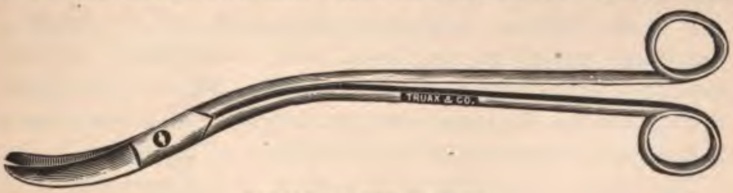
The stitches are to be removed in eight days after the operation, unless their presence should have induced the menstrual flow, in which case they are to be left until the flow has ceased. There is no occasion for douching the vagina for the first forty-eight hours after the operation. After that time it is well to use a vaginal douche medicated according to the fancy of the surgeon.

It used to be my custom to confine patients to bed for at least two weeks after being operated upon for laceration of the cervix. But I find the results to be fully as satisfactory when permitting them to sit up upon the day following the removal of the stitches. During convalescence the patient should not remain in the sitting posture more than an hour or two during the first few days, but within four or five days after she has been permitted to sit up for the first time, in ordinary cases, the convalescent may be permitted to remain out of bed as long as she is comfortable, and to begin to walk around. This advice applies to the majority of cases, but not to all, for there will be exceptional ones where the operation has been performed on a subinvoluted uterus, or, on one inclined to inflammation, where a longer period is required before assuming the upright position.

In removing the stitches, the finger is first to be inserted so as to locate the exact position of the end of the cervix. A bivalve speculum is then to be passed toward this point and opened in such manner as to permit the end of the cervix to drop between its blades. The blades are now to be held apart and the end of the cervix thoroughly douched, after which the stitches are to be carefully removed in the following manner: After bringing the cervix into view, a tenaculum is to be inserted into the curled extremity of one of the stitches nearest the external os. Using the tenaculum as a fulcrum, the cervix is to be pulled sidewise carefully until the stitch above it is brought into view. Another tenaculum is made to seize the curled extremity of this stitch, and the same proceeding repeated until the last stitch is brought into view. A tenaculum or pair of polypus forceps is now employed to draw the stitch well into view, and a pair of blunt-pointed double curved scissors is made use of to sever the stitch upon one side. Care should be taken to sever but one side, as if both sides are severed it will be difficult to remove the deep part of the stitch, which is covered by the tissues of the cervix.



BIVALVE SPECULUM.



DOUBLE CURVED SCISSORS.

As soon as one side of the stitch has been severed traction upon the tenaculum, which still retains its hold upon the curled extremity of the stitch, will at once straighten the wire and remove it.

The stitches are all to be removed in this manner, the upper ones first, leaving the two stitches which guard the outer extremity of the os until the last. The douche is to be again employed for the thorough cleansing of the surfaces and washing away all débris and the small amount of blood which the manipulation may have occasioned, and then one side of either of the two remaining stitches is to be severed. Before removing the last stitches, however, the blades of the speculum are to be loosened so that they no longer distend the walls of the vagina and are in no danger of parting the freshly healed surfaces. The patient is to be placed again in her bed, and on the following day, in the majority of cases, she may be permitted to begin her convalescence by sitting up. An anæsthetic is not required for the removal of the stitches, for, if the work is carefully done, it is painless.

The cervical canal should not be examined for several months subsequently. Indeed the patient may be permitted to go entirely unmolested so long as her general health continues to improve. If, some months subsequently, her improvement seems to have ceased, there is a probability that it is owing to an undue narrowing of the canal, which should now be dilated, and if any roughness should be detected along either margin, it is to be curetted. Subsequent dilatations, and, if necessary, curettings are to be employed, when interference becomes desirable, at the residence of the patient. She can then immediately assume the recumbent position for from a few hours to a few days, according to the irritability of the uterus.

The work of repairing a laceration of the cervix is never completed until a perfectly smooth and dilatable cervical canal is secured.

In operating upon women past the climacteric, do not be alarmed if at the termination of the operation the end of the cervix and the margins of the wound present a mottled appearance resulting from stagnation of the capillary circulation. This condition is not uncommon, nor is it alarming. As soon as the speculum has been removed and the rectal dilatation, which should always be practiced after the operation for laceration, is performed, the circulation very speedily becomes re-established, and sloughing of the cervical tissues seldom follows. In ninety per cent of cases the healing is perfect and an ideal result is attained.

Occasionally, especially where the cervix has been softened by inflammatory processes, the stitches at the extremity of the cervix will cut through and the healing process will be only a partial success. Sometimes these cases require a second operation for the perfect healing of the lower extremity of the cervical canal. The repetition of the operation is very seldom required, as the parts show a satisfactory tendency to repair if there is any considerable degree of strength remaining in the patient. Where a retro-flexion accompanies a laceration of the cervix, fully one-half of the cases will spontaneously correct it in the course of a few weeks. The means of correcting the retro-flexion where it is persistent is not a proper subject for discussion in the present treatise, as it belongs to the subject of gynecology, and is already ably discussed in standard text books.

CHAPTER VII.

INCIDENTS AND ACCIDENTS.

In all operative procedures, in spite even of the most extreme care, there are occasional mishaps which may become a source of anxiety to the operator, and upon which it may be well to offer a few words.

In the English and American operations upon the rectum it is quite common to find a large number of the arterioles of the part so enlarged as to call for the use of a considerable number of artery forceps, although the hemorrhagic points are commonly but three, one on each side and one in front. A free use of the forceps renders harmless this complication. Before operating the bowel has been dilated by the use of the bivalve, and upon removing the mucous membrane from the sphincters, they will frequently be found to be more or less ruptured. This is most liable to take place at the commissure of the fibers near the coccyx. No harm results from the condition, but I mention the fact for the reason that the appearance of the tissues might perplex one who is not familiar with it. The operation is to be proceeded with as though the rupture had not taken place.

After all English, American or clamp operations, although the patient may be able to control fecal discharges, occasionally he is unable to prevent the escape of flatus. This is due, not to a weakness of the muscular fibers, but to the clumsy nature of the cicatricial tissues about the anus. Examination in such cases often reveals the parts puckered in places, and rough and nodulated. They are to be smoothed with tenaculum and scissors, and the cicatricial band nicked in places and dilated. As a rule, this simple procedure will immediately restore the sphincters to their normal action. An occasional case, however, will be found — especially in old people — in which the patient will still be troubled with imperfect action of the sphincters. A few applications of the Faradic current, using the negative pole in the rectum and the positive over the sigmoid flexure, will invariably remedy the trouble.

After the operations for the excision of hemorrhoids, especially where a considerable portion of the last inch of the bowel has been denuded of its mucous membrane, the swelling of the parts, together with the adhesion between the raw surfaces, will so completely close the exit of the bowel as temporarily to prevent the escape of flatus. Severe colic and tympanites, and occasionally a considerable degree of fever, are liable to result from this condition unless it be speedily remedied. This can be done almost instantly by the introduction into the bowel of a flexible catheter.

A few weeks after an operation palpitation of the heart and shortness of breath is very liable to occur, caused by cicatricial contractions at the anus. Instant and permanent relief may be given by dilatation, and relieving all contracted spots by the tenaculum and scissors.

Although the work is usually a cure for constipation, in some cases it appears to induce it, even where the condition did not before exist. A few colon flushings, or the employment of massage or electricity, aided by medication, will satisfactorily remedy the difficulty. In using the colon flushing, if the patient has sufficient strength to assume the position, it is well to have him occupy the knee-chest posture. If, however, he is feeble, the hips can be elevated on a pillow, or he can be placed on his right side, and by means of a colon tube, or even without it, the colon throughout its entire length can be flushed to its capacity. The quantity of water required will sometimes be a gallon, and sometimes more. Occasionally a colon will be found so sluggish that it will not respond even to the action of the water, which, instead of coming away and bringing with it the accumulated feces, will be speedily absorbed by the system and find its exit from the body by the sweat glands, the kidneys, or both. In addition to the flushing, which should be given from once a day to once a week, according to the toleration of the patient, all the other measures known to the profession for restoring tonicity to muscular structures should be employed to secure a normal peristaltic action of the bowel.

Where the mucous membrane has been considerably softened by subacute inflammation, the parts, instead of healing by first intention, often separate slightly, the stitches cutting through the mucous membrane and thus failing to retain it in coäptation with the skin. It is useless to make another application of sutures, as the tissues would be still softer after the operation than before, and they would again cut through. Nor, indeed, is there any necessity for such procedure, as the narrow strip of uncovered wound speedily fills up with granulations and skins over from the two margins. Subsequent dilatation, of course, will be necessary to prevent undue contraction, but this can be postponed until some reflex mischief is occasioned by the contraction, or until the soreness has entirely disappeared.

In using bougies for strictures located high in the rectum, the surgeon may, in very exceptional cases, impinge upon a spot so softened by inflammatory processes as to permit the bougie to pass through its walls instead of going along the canal. In this case, of course, the bougie enters the peritoneal cavity, and leaves a hole in the intestine. No alarm need be felt by the surgeon, as the wound seems to heal kindly without any great inconvenience to the patient. The olive-tipped, soft rubber bougies are the safest to employ. All the perforations that I have seen have been made with the common elastic bougie, the use of which I long since abandoned.

In dilating a strictured bowel by means of the bivalve, the stricture will often be torn to a considerable extent on one side, and some hemorrhage will occur. The wounded surface should be examined, and any bleeding vessels secured by torsion. No difficulty will arise from the rent in the bowel. It is not uncommon where the tissues about the anus are very friable to have the proper amount of dilatation occasion an extensive rent in the anus, extending for some distance into the integument. No attention need be paid to the wound, as it heals by first intention and causes no trouble.

In operating upon tubercular subjects, instead of healing kindly, wounds of the last inch of the bowel occasionally take on ulcerative processes which are quite obstinate in their nature. Thorough cleanliness and the application of stimulating drugs and ointments, together with frequently repeated dilatations, will be required to secure satisfactory results. Submucous section of the sphincters in these cases is liable to result in the formation of a fistula along the line of the division of the muscles. Hence this procedure is to be avoided.

If the patient operated upon is of a hemorrhagic diathesis, a wad of cotton encased in Chinese silk would better be inserted into the rectum and permitted to remain for a few hours. Silk is preferable as a covering for the cotton, because it is a most satisfactory hæmostatic, even in professional bleeders. It is a good dressing for all wounds, acute or chronic, and is serviceable in dispersing congestion.

In dilating a strictured vagina the walls are apt to be more or less torn, according to the firmness of the stricture and the degree of dilatation. No anxiety, however, need be felt as to the satisfactory healing of these parts. Occasionally a uterus will be found the fundus of which has become so softened and attenuated by inflammatory processes that, with the most careful handling of sounds, it will be penetrated and permit the instruments to pass entirely through its walls, thus entering the peritoneal cavity. The accident very seldom occurs, but when it does it is not at all serious, and need not alarm the operator. It would never do, however, to attempt to douche the uterine cavity after the accident has occurred.

In operating for laceration of the cervix, should the circular artery be wounded, it should be immediately seized by artery forceps, if possible. If, however, the wound is so deep and the flow of blood so profuse as to make this a difficult task, the speculum can be removed and a stitch passed through the cervix at the deep part of the wound by the sense of touch. As the operation must already be nearly complete, the stitch can be tightened and permitted to remain the usual length of time before removal. The accident, however, should not happen, and it will not if the instructions given in the description of the operation are carefully followed.

Pruritus of the vulva, scrotum and anus occasionally appear immediately after orificial work, but it is usually a result of lack of cleanliness, and can immediately be remedied by frequent douchings and the application either of a small amount of blue ointment, or of listerine, or of equal parts of carbolic acid and olive oil, together with proper internal medication.

In operating upon sensitive patients, especially those afflicted with functional derangement of the heart, the patient should be carefully watched during the performance of the rectal work. The pinching of the tissues in the grip of the forceps or clamp, or the dilatation occasioned by the use of the speculum, may show such a marked tendency to suspend the heart's action as to require the performance of the work at intervals, due time being permitted the patient to rally before operative procedures are resumed. Orificial work in such cases can either kill or cure. If handled skillfully, by its aid anæsthesia is perfectly safe, even in cases where it would be dangerous to employ it for any other purpose.

CHAPTER VIII.

THE AFTER-TREATMENT.

THE reader not unnaturally will conclude from a careful perusal of the preceding pages that the orificial methods as recommended, aside from their local effects in restoring the lower openings to a normal condition, exercise a profound influence upon the entire capillary system. Skin, mucous membrane, muscular structures, bones, nerve tissue, areolar tissue, glandular structures, every part of the human body where blood flows to bring new material and to carry away the débris, experiences an immediate flushing of the capillaries, and a consequent increase of life, and a more rapid disintegration and removal of effete matter. It is a profound shock to the entire system, and arouses to increased reactive power every latent energy of the organism.

The work is applicable, therefore, to the whole range of chronic diseases, and the great army of patients who are incurable by other methods are candidates for the work of the orificial surgeon. It would be useless to enumerate the entire list of troubles which heretofore have baffled professional skill. The multitudes who suffer from them swarm around nature's healing springs, laving in their waters. They fill sanitariums and health resorts, they lie discouraged and abandoned in multitudes of homes, they cross oceans and continents, traveling to the ends of the earth in vain effort to escape from themselves. They sustain by their patronage stupendous manufactories of patent medicines, and, failing to find relief from the various measures which they have tried, have usually lost confidence in every thing and every body. Only the wellspring of hope, which, fortunately, exists as a saving element in every human being, induces them to make another effort to escape from their bodily afflictions. All these people are sick because a spent sympathetic nerve-force has so weakened their capillary circulation as to permit passive congestion of parts that are over-used, and thus set up functional derangements and the various forms of pathological processes. Restore to them their nerve-power, induce reaction, and the functions of the weakened organs are very speedily resumed, and all the processes of their nature assume once more their normal action.

But, although orificial irritation at the lower openings will always be found to exist in the various forms of chronic disorders, the orificial surgeon must remember that the measures which he has at his command, although radical, are necessarily more or less severe, and that he is by no means called upon to anæsthetize and operate upon every chronic sufferer that applies to him for relief. He must reserve his work for those cases which have made a thorough trial of milder measures and still remain unrelieved, and are sufficiently uncomfortable in their diseased state to make it worth their while to undergo radical treatment. In other words, in all chronic diseases every opportunity should be given patients to regain their equilibrium of life by means of milder measures.

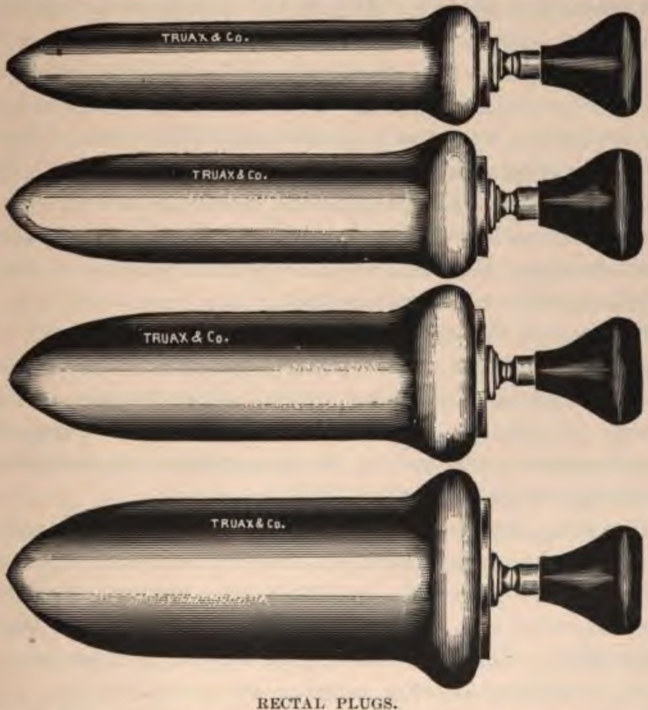
The administration of drugs, the application of electricity or some one or more of the various measures already known to the profession for correcting morbid conditions may be sufficient to relieve the patient of his distress, and should always be given a fair trial.

But when these measures fail, the profession, as well as their patients, will welcome, as soon as they appreciate, another means which is marvelously effective in arousing the latent reactive powers of the system, and making multitudes of recoveries possible which, without it, would continue to baffle surgical and medical skill.

Many of these cases, however, are so depleted in their energy that the flame of life is flickering, and so nearly gone out that there would not be sufficient strength to react from the shock of orificial work. In such cases, instead of anæsthetizing the patient and subjecting him to severe treatment by this radical measure, it is much better to institute preliminary measures calculated to give the patient increased strength before the work is begun.

It is well never to do any cutting at the sphincter-guarded orifices without doing all the cutting necessary, and following with thorough dilatation of the sphincters. Hence, the only measures which at present I can recommend from an orificial standpoint for stimulating the patient to a degree of strength sufficient to undergo the necessary operative procedures for his permanent repair are heat and cold, either moist or dry, together with dilatation.

Were I to select from these measures the most beneficial of all, I should choose dilatation. The rectal plugs, of which the following is a cut, are very serviceable for this preparatory work, being smooth and thoroughly polished and doing no violence to the tissues of the anus. A suitable size can be


TRUAX & Co.
TRUAX & Co.
TRUAX & Co.
TRUAX & Co.

RECTAL PLUGS.

selected, dipped in vaseline and passed into the bowel at bedtime every night, or every two or three nights, according to the reactive power of the patient, allowing it to remain *in situ* from five minutes to an hour, or even more, at the discretion of the surgeon. It is impossible to dilate the sphincters without immediately flushing the capillaries of the entire body, and the repeated flushing of the capillaries resulting from the measure now recommended implies generally improved nutrition and increased activity in all organic processes. From this simple measure alone great improvement in the health will be effected, and patient and physician will both be gratified at the favorable change in the case. Nothing further should be done in such delicate cases so long as the improvement continues. But in the course of a few weeks, or, at most, a few months, the limit of benefit will have been reached, and then it is time to anæsthetize the patient and perform the necessary work.

Dilatation of the anus is more beneficial in cases of hemorrhoids and ulceration than it is in pockets and papillæ. Dilatation of the sexual organs should never be practiced when rectal irritation is present except at the time of the operation, when what may be called all-around work removes all danger of irritation from the proceeding.

A course of sitz-baths, injections and douchings, and daily sponge-baths in cold water, and other measures already known to the profession for toning up the entire system and temporarily stimulating the circulation, are proper preparatory measures to be employed in feeble patients before beginning the radical methods of the orificial surgeon.

Supposing, however, that all this has been done, and the patient has been operated upon, the after-conduct of the case and a knowledge of the results which may be confidently expected are of great importance in contributing to the success of the work. One must not expect that the performance of a single operation, or of a number of operations by orificial methods, can be surely relied upon to carry all cases to a successful issue. The number of cases that will be immediately restored to health, after suffering oftentimes for years, by a single application of orificial methods unaided by any after-treatment or attention whatever, is startlingly large, and if the general profession were aware of what had already been accomplished in this direction, they would immediately awaken from their lethargy and give to orificial surgery the consideration and attention which it so well deserves, and which I am satisfied from its past record it is bound to receive.

But in a large percentage of cases a single sitting is not sufficient to secure the desired conditions of the sphincter-guarded orifices which are essential to the restoration and maintenance of health, and, to be permanently successful, the work must be followed to a finish at longer or shorter intervals, according to the demands of the case, constantly keeping in mind the universal rule of letting well-enough alone, and permitting a patient to go unmolested so long as improvement continues. A large percentage of cases will secure by the orificial processes, even when carried to their legitimate extent, merely an increased reactive power, necessitating the employment of measures already known to the profession to carry the case to recovery. After the application of orificial processes the system is more responsive to all forms of treatment, and patients that before being operated upon would show no reactive power to medicines or electricity, or whatever other form of treatment was used, after the work is done will be found to be keenly sensitive to the very same measures.

In a word, orificial surgery is a rival of no other form of treatment, but simply a supplement to the knowledge already at the command of the profession. It displaces no treatment that before was serviceable, but simply adds another method to the physician's armamentarium, by aid of which he can greatly increase his percentage of cures.

As orificial work instantly flushes the capillaries, it stirs up all the waste matter in the system and promotes the development of any latent poison that may be lurking in it. If the method be employed in one who has a tendency to consumption, if you do not follow it to a finish and prosecute it with vigor you will materially hasten the progress of the disease and shorten the patient's life. If the typhoid germ is lingering in the system at the time of the operation, the operator need not be surprised if the patient suffers from a mild course of typhoid fever immediately after the operation. The increased strength which the capillary flushing gives him, however, enables him to pass through it safely and quickly. It is but fair to say that such instances are very rare. The work could hasten a condition of paralysis, if a tendency to it existed, the paralysis lasting but for a short time and invariably being followed by great improvement later. Insane cases are liable to be considerably aggravated for a few days, after which very rapid and marked improvement will be seen in most of them. Dyspeptics may be extremely nauseated for a few hours, but a speedy reaction soon restores the stomach to a better state than it had been in for years previously. Suppressed malarial poison which may have caused congestion of the liver or spleen for many months or years, soon after an operation will be liable to result in a well-marked malarial condition, which will last from three or four days to a week, according to the severity of the case. Asthmatics, although immediately relieved by the work, may suffer a relapse of their trouble which will continue until some time after all work has been completed, and after the resulting irritation has subsided. Cases suffering from seminal losses will probably be worse for a few days or weeks. In a word, this history will apply to the long list of disorders to which the work is applicable.

Aggravations such as I have mentioned are not the rule. The great majority of cases are immediately and permanently benefited to a greater or less degree. Cold hands and feet are made warm, digestion and assimilation improved and all the activities of the body greatly stimulated.

There is a class of cases concerning which the surgeon should be informed which are disappointing for a time, but which subsequently become objects of his greatest satisfaction.

These cases are in subjects of low vitality, with the life processes so sluggish that after the work is accomplished instead of showing immediate improvement they seem to be more or less injured, become more sluggish than before, losing strength instead of gaining it, and lingering thus for weeks and sometimes for months before a change for the better is witnessed. Nothing but experience in the work will enable the orificial surgeon to select with certainty the special cases among his chronic patients that will behave in this unsatisfactory manner. The possibility of such a behavior of the case, however, should always be kept in mind, so that the surgeon may be able to retain the confidence of the patient through this discouraging period. Familiarity with psychological as well as with physiological principles, and a thorough acquaintance with the characteristics of the patient will enable a surgeon to form a fair judgment of the chances in a given case. Experience in the work, also, will furnish data from which to judge, so that he will soon be able to make an accurate prognosis and escape censure and avoid dissatisfaction, even in the slowest cases.

The longest period which I have known to elapse before reaction set in after orificial work, and in which I was well satisfied that the reaction was due entirely to the work, has been two years. The great mass of cases, of course, react very promptly, and show marked improvement in from twenty-four hours' to a month's time. But as I am particularly anxious that the profession should not be disappointed in the action of orificial work in chronic cases, I desire to state the case so conservatively as to prevent the possibility of any misunderstanding. Hence, I have tried to direct attention to those phases of the work which, without a knowledge of its irregularities of action in exceptional cases, would discourage the operator.

There are a few suggestions as to the immediate after-treatment of all orificial work which may be serviceable to beginners. When stitches have been applied to a part, dry dressings seem to favor primary union, and are preferable to moist dressings. When, however, a surface has been wounded but not stitched, fomentations are very serviceable and are a source of comfort to the patient.

So close is the relation between the rectum and the urethra, in either sex, that where stitches have been applied about the rectum, as in the American, English or clamp operations, the use of the catheter will almost invariably be required, several times at least, in order to secure evacuations of the bladder. In many cases this practice must be continued so long as the patient retains the recumbent posture, although usually they are able to urinate without assistance after the first day or two.

The patient should always be kept upon a light diet after an operation until after the first passage of the bowels, after which the diet may be increased at the discretion of the surgeon. It is better not to confine the bowels by opiates, but to leave nature unmolested in her tendencies. Usually the bowels will remain inactive, except in cases of chronic diarrhœa, for from two to six days after the surgical work has been performed.

Care should be taken in the first movement of the bowels to accomplish it with as little discomfort to the patient as possible. This will necessitate the use of mild cathartics or enemata or both, according to the demands of the case. It is well in some cases to paint the last inch of the bowel with a four-per-cent solution of cocaine previous to the first evacuation.

Stitches about the rectum will require removal in from four to six days after the operation, unless catgut be employed for sutures, in which case they can be left to absorb or disengage themselves. Stitches should be removed from the perineum in from eight to twelve days after the operation. The patient should not assume the erect position, however, for two or three weeks from the time the operation is performed. Stitches may be removed from a lacerated cervix on the eighth day, unless the operative work induces menstruation, in which case the removal of the stitches is to be postponed until the flow has ceased, as has already been stated in the previous chapter. In ordinary cases the patient can sit up on the day following the removal of the stitches.

I am aware that this suggestion differs somewhat from the commonly prevailing practice, and also from my own practice of a few years ago; but as the result of an extended experience, I have found more prompt and satisfactory results from permitting the patient to sit up on the ninth day than in cases where I have confined her to the bed for a longer time.

It is quite unnecessary to use vaginal douches in cases of laceration of the cervix, unless the presence of a discharge, offensive or otherwise, demands its employment as a matter of cleanliness. A cold compress applied across the region of the bladder in cases of laceration of the cervix is very beneficial, and should be kept up for four or five days after the operation, except in those exceptional cases where the compress seems to induce irritation of the bladder and cause too frequent micturition.

After the operation has been performed, all stitches removed, and the patient pronounced convalescent, the parts should not be examined or molested in any way so long as the general results of the work seem satisfactory and the patient continues to improve in health.

When, however, improvement ceases, and the patient has not yet attained a satisfactory degree of health, the part should be examined, and what further unsatisfactory condition may be observed should be corrected. If necessary, an anæsthetic may be used so that the work may be thoroughly done. An anæsthetic properly given is no more serious than a dose of morphia, and I have learned to regard it as of minor consequence compared to the shock which pain produces. I well remember one case that came under my care in which a lady had been under an anæsthetic fifteen times before she applied to me, in order that the various surgeons that had treated her might make an effort to overcome a rectal stricture with which she was afflicted. In the course of a few months I finally succeeded in curing the woman, but was compelled to use an anæsthetic three or four times before my object was accomplished. Of the thousands of patients that I have seen under an anæsthetic I cannot recall one that has received permanent injury from its administration.

CHAPTER IX.

THE UNCONSIDERED ELEMENT.

In the treatment of chronic diseases there is one element which is usually overlooked, or, at least, is insufficiently considered by the profession; that is, the element of life. A house may be built never so finely, but time will bring the usual changes. While the heat, cold, moisture and dryness of the atmosphere are disintegrating its outer structure, the occupants of the house are wearing its floors, marring its walls, breaking its windows, and straining its joints from the inside.

The same is true of the human body. It is a narrow coast, beaten by the waves of both time and eternity. Material forces and agencies are constantly disintegrating its structure from the material side, while storms of passion and floods of thought are beating against it from within.

A foreign body in the eye, or a condition of inflammation of the conjunctiva can stimulate to undue action the lachrymal glands; but in the absence of any form of physical irritation the eyes can weep as many tears from purely emotional causes. Motion of the jaws can induce a flow of saliva; but the mouth can also water as the result of thought, even without physical influence. Mental, as well as physical exertion will induce perspiration. Joy can send the blood bounding with increased rapidity through the arterial tree of life, or fear can stagnate the stream as effectually as can be done by exercise and rest. An irritation of the last inch of the bowel can arouse a sexual system to increased activity, continually making lustful suggestions, tempting to undue waste of sexual power; but so, also, can carnal emotions, unstimulated by any form of irritation. Physical force can arouse to action, stimulate to over-exertion, and completely destroy a human being. Spiritual forces exert a like power over the same structure. They can stimulate to normal activity the entire organism in all its parts, and they can descend upon it with such fury as to completely destroy all its normal activity. They, too, can kill.

In my experience with orificial methods I have seen the licentious made virtuous; I have seen the ill-tempered made amiable; I have seen the sluggish made active; I have seen the impetuous restrained, the furious tamed and the depressed elated until I have become very charitable in my judgment of my kind in their various weaknesses. But, on the other hand, I have seen orifices which have been well smoothed, again roughened from no conceivable cause except habits of thought and feeling. I have seen jaundice occasioned by passion. I have seen sexual systems and rectums become obstinate from mere crystallization of mental states. In my own mind I am thoroughly convinced that the body is but the crystallization of spirit, and that physical pathology has its counterpart in spiritual pathology. I believe that there is a mutual inter-dependence and influence exercised upon each other by the mind and body, and that the time has come when the physician, in order to become a successful healer, must familiarize himself with spiritual anatomy, physiology, pathology and therapeutics and not confine his attention exclusively to mechanical work.

Since whatever affects the circulation of the blood also has its influence upon the congestions which the physician is seeking to relieve, he is compelled to look beyond mere matter, and to recognize all the forces which either aid or baffle him in his efforts to restore physical equilibrium.

This is not the place to enter into consideration of mental therapeutics, but I should fail in my duty did I neglect to call attention to the part that spiritual forces play in causing and curing chronic diseases. Where disordered functions are purely physical in their origin, orificial surgery is simply magical in its action. Its power for good is simply incalculable. But in deep-seated constitutional troubles, and in those in which reaction is exceedingly sluggish or long delayed, do not be too certain that there may not be present in the case a spiritual dyscrasia — some constitutional form of selfishness that is so incompatible with a healthy organism as positively to prevent its establishment.

There is much need of a practical work upon mental therapeutics. Perhaps this century, which has flooded every department of human industry with new light, will yet present to the profession a treatise upon mental diseases and their therapeutics that will be scientific in its construction, logical in its deductions and practical in its suggestions. Mere theoretical vagaries and nebulous conceptions are wholly inadequate to the needs of the profession. We must have something tangible, intelligible and effective.

In dealing with purely chronic conditions, the orificial surgeon is brought face to face with the deep problems of nature, and is compelled to consider phases of disease which practitioners in acute troubles can more easily escape. Blood always tells, whether in the lower animals or in man, and children present a combination of the qualities of their parents. Closer yet is the connection between the various organs of the body that possess them. Laughter enlivens the entire body, and grief with its tears depresses it. Recognizing, then, the universal fact that the quality of an organ partakes of the quality of the individual, the orificialist soon learns to individualize the parts that he treats and adapt his methods to their characteristics. The lazy can be prodded, but the obstinate must go for a time unmolested. The sleepy can be roused, not too rudely but yet firmly, but the irritable must be soothed and treated with consideration. The same principles which guide one in a successful career with mankind generally must be employed by the orificial surgeon to insure successful treatment of individual organs. Without entering upon the higher grade of orificial work much good will be accomplished by those whose whole confidence rests upon the employment of physical forces. But the greatest percentage of cures will always be made by those surgeons whose knowledge of spiritual as well as of physical forces enables them to appreciate and to consider the mutual action and reaction of mind and matter.

INDEX.

Adhesions of the hood of the clitoris, 18.
After-treatment, 149.
Allingham, 27.
American operation, 44, 65, 71, 144.
Anæsthetic, 49.
Anæsthetization, effect of, 10.
Andrews, Dr. Edmund, 42.
Anus, dilatation of, 71.
—— lesions of, 26.
Artery, circular, 130.
Atresia, uterine, 116.

Baggy vagina, 99.
Bivalve speculum, 141.
Blood-stasis, 1.
Blunt hook, 19.
Bodenheimer, 27, 43.

Candle-wicking, 114.
Capillaries, flushing of, 11.
Caruncle of the urethra, 19.
Carunculæ myrtiformæ, 99.
Catarrh, uterine, 114.
Cervix, atresia of, 104.
Cervical canal, 103.
—— catarrh, 103.
Cervix uteri, lacerations of, 21, 117, 126, 127.
—— ulceration of, 103.
Change of life, 127.
Cicatricial plug, 127, 128.
—— tissue, 129.
Circulation, enfeebled, 1.
Circular artery, 130.
Circumcision, 84.
Circumcising young children, 87.
Clamp operation, 46.
Clitoris, the, 90, 97, 98.
—— hood of, 12.
Congestion, metastasis of, 22.
Cripps, Dr., 27.
Cystocele, 117.

Danforth's artery forceps, 131.
Dilatation, effect of forcible, 13.
—— for hemorrhoids, 73.
—— of the male urethra, 17.
—— of sphincters, 11.
—— of the urethra, 19.
—— of the vagina, 20.
Double curved scissors, 141.
Dry heat, 92.
Dyspepsia, 8.
Dysmenorrhœa, 105.

Electric speculum, 101.
Element, the unconsidered, 159.
English operation, 51, 144.
Enlargement of the prostate, 95.
Equalization of the circulation, 15.
—— —— capillary circulation, 11.
Excision of hemorrhoids, 43.
External os, 103.

Fistulæ, 27.
Fistula in consumptives, 32.
—— radical treatment of, 28.
—— simple, 28.
Fissures, 37.
—— large, 37.
—— small, 37.
Foreskin, 83.

Galvano-cautery, in the treatment of fistula, 29.
Glans penis, 83.
Gleet, 82.
Glottis, closure of the, 49.
Graded sounds, double, 108.
Gonorrhœa, 82.
Gravid uterus, 102.

Headaches, chronic, 65.
Hemorrhage, three points of, 57.
Hemorrhagic diathesis, 147.
Hemorrhoids, 23, 39.
Hemorrhoids, acute, 40.
Hemorrhoids chronic, 40.
Hemorrhoidal inch, 22, 65.
Hemorrhoids, internal, 39, 40, 44.
—— middle, 44.
—— external, 40, 56.
—— treatment of, 40.
Hemorrhoidal tumors, diagnosis of, 41.
—— —— large and small, 46.
—— veins, 39.
Hernia, 39.
Hymen, the, 20, 99.
—— remnants of, 99.

Immediate operation for laceration, 117.

Incidents and accidents, 144.
Injection fluid, 42.
Internal os, 129.
—— sphincter. 66.
Irritation, metastasis of, 22.
—— of an organ, 4.

Kelsey, Dr., 27-39.

Labia minora, 12.
—— —— redundant, 18.
Lacerations of cervix, 21, 117, 126, 127.
—— —— 21, 117, 120, 123.
Laryngitis, 8.
Limited application of orificial philosophy, 16.
Limits of orificial philosophy, 7.
Linderschmidt, Mr., 92.
Linn, Dr., 92.
Lower orifices, local lesion, 17.
Lusk, Dr., 144.

Male sexual system, 79.
Masturbators, 82.
Meatus urinarius, 17, 87.
—— —— lesions of, 21.
Menopause, 127.
Menstruation, 127.
Metritis, chronic, 116.
Molecular death, 9.
Mucous membrane, softened, 64.

Nasal catarrh, 8.
Nerves, double system of, 2.
Nerve-force, waste of, 1.
Nerve waste, 22.
Neuralgic symptoms, 127.

Order of operation, 17.
Orificial irritation, 6.
—— surgery, philosophy of, 1.
Otis Bulb Sounds, 18.
Ovaritis, chronic, 116.

Palmer, Dr., 92.
Papillæ, 22, 67.
Perineum, laceration of, 21, 117, 120, 123.
Perineal operations, 117, 126.
—— scissors, 118.
Periodical discharges, 80.
Pessaries, 100.
Pessary stem, 112.
Pharyngitis, 8.
Philosophy of orificial surgery, 1.
Physick, Dr., 68.
Pile-bearing inch, 45.
Plug forceps, 138.
Pockets, 22.
—— and papillæ, 28.
—— rectal, 68.
Powders for dressing, 62.
Pregnancy, 107.
Procidentia, 101, 117.
Prolapsus of the bowel, 38.
—— uteri, 117.
Proposition, the primary, 5.
Prostate glands, 71.
Prostatic inch, 89.
—— —— congested, 93.
—— irritation, 95.
Pruritus ani, 77, 148.
—— vulvi, 148.

Rectal bivalve speculum, 29.
—— irritation, 77.
—— operations, 71.
—— pockets, 69.
—— work first, 21.
Rectocele, 117.
Rectum, the, 25, 63.
—— last inch of, 25.
—— normal condition of, 25.
—— upper part of, 25.
Rectal plugs, 151.
Reflex irritation, 6.
Respiration, effect upon, 11, 12.
—— interference with, 49.
Rorick's injection, 42.
Roughness of anus, 65.
Rupture of perineum, when to operate, 118.

Salpingitis, chronic, 116.
Scissors, sharp-pointed, 56.
Seminal losses, 80.
Sexual irritability, 95.
—— organs, 17.
—— —— congestion of, 81.
—— system, 77, 82.
—— —— male, 79.
—— —— female, 97.
—— waste, 79, 82.
Short frænum, 17.
Shortness of breath, 64.
Sigmoid flexure, 74.
Smith, Professor, 43.
Sounds, passing, 94.
Spermatorrhœa, 95.
Sphincter ani, dilatation of, 20.
Sphincters, contracted, 63.
Sphincter, internal, 66.
Sphincters, spasm of, 71.
—— spasmodic contraction of, 63.
—— tense, 70.
—— tension of the, 66.
—— tight, 22.
Spinal congestion, 71.
—— irritation, 127.

Stem pessary, 112.
Sterility, 105.
Stitches, when to remove, 156.
Streeter, Dr. J. W., 122.
Stricture of the urethra, 89.
Strictures, 146.
Submucous section of the sphincters, 33.
Suture, wire, 136.
Sympathetic nerve, 2, 26.
—— nervous system, 3.

T-forceps, 18.

Ulcers, 38.
Ulceration of the cervix, 103.
Urethra, 63.
Urethral bivalve speculum, 19.
Urethra, dilatation of, 91.
Urethral douche, 18.
Urethra, the female, 98.
Urethral irrigator, 18.
Urethra, orifice of the, 19.
—— stricture of the, 89.
Urethritis, 94.
Uterus, the, 102.
Uterine catarrh, chronic, 113.
Uterus, congested, 23.
—— dilatation of, 105.
—— flabby, 114.
—— gravid, 102.
—— hypertrophied, 114.
Uterine packing, 114.
—— stenosis, 110.

Vagina, the, 99.
—— baggy, 117.
—— dilatation of the, 20.
—— overdistended, 117.
Vaginismus, 99.
Varicose veins, 39.
Vaso-motor system, 1.
Vernueil, 72.
Veru-montanum, 90.
Vesiculæ seminales, 90.
Vulcellum, double, 137.

Whitehead, Dr., 44, 51.
Wire suture, 136.

ERRATUM.

Page 104, third line from top, for "atresion" read *atresia.*

LANE MEDICAL LIBRARY

To avoid fine, this book should be returned on
or before the date last stamped below.

M567 Pratt, E.H. 67030
P91 Orificial surgery.
1890

NAME	DATE DUE